THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

April 11th, 1876.

Colonel A. Lane Fox, F.S.A., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The Director announced the following new elections:—Mr. Frederick Jacobs, of Yokohama; Mr. H. O. Wood, B.A., Magdalen College, Oxon; Rev. W. Jackson, M.A., Worcester College, Oxon. The following honorary members were announced:—M. Cartailhac, of Toulouse; M. Chantre, of Lyons.

The following presents were announced, and the thanks of the meeting were voted for the same, viz.:—

For the Library.

From the Editor.—Materiaux pour l'histoire de l'homme, for March, 1876.

From the Society.—Transactions of the Society of Biblical Archæology. Vol. IV. Part 2.

From the Author.—Sui depositi Antropozoici, &c. By Ettore Regalia.

From the Association.—Proceedings of the Geologists' Association. Vol. IV. No. 6; Annual Report do., for 1875.

From the Author.—Anniversary Address, Geological Society, 1876. By John Evans, F.R.S.

From Joseph Sabin, Esq.—Catalogue of the Library of E. G. Squier.

From the Editor.—Revue Scientifique. Nos. 40 and 41. 1876.

From the Berlin Anthropological Society.—Zeitschrift für Ethnologie, No. 6, 1876.

From the Author.—Centrifugal Force, &c., Papute, 1875. By Thomas Croft.
From the Editor.—Nature to date.

The Director then read a note by Mr. Joars (communicated by Mr. John Evans), on some proposed Archæological symbols for maps.

Dr. Comrie, R.N., then read the following paper on the Inhabitants of New Guinea, and exhibited a large collection of weapons, works of art, articles of clothing, &c., from that island.

Anthropological Notes *on* New Guinea. By Dr. Comrie, R.N.

Having visited, while belonging to H.M.S. "Basilisk," in 1874, that portion of New Guinea lying between East Cape and Astrolabe Bay, and finding the Aborigines living in the Stone Age, and having previously to the visit of the "Basilisk" apparently had no communication with Europeans, I was induced to make some brief notes of their manners and customs, to form a collection of crania, weapons, implements, and other objects of ethnological interest, which are now submitted for the information of the Society.

Crania.—These, fifteen in number, were collected in the neighbourhood of East Cape, on the mainland, and the immediate adjacent islands. As will be observed, the lower jaws are, with two exceptions, wanting—an omission not arising from neglect in collecting, but owing to the lower jaw being used by the Papuans as a bracelet, a band of grass connecting the rami completing the circle. These ornaments, of which several are shown, are very much prized by their possessors, and were very difficult to procure. As far as could be ascertained, the body is first buried, and after some considerable period has elapsed it is taken up, the head and two upper vertebræ (axis and atlas) removed, the trunk being re-buried. The skull is cleaned, and in some cases put past on the roof of the dwelling, wrapped up in plantain leaves, in others thrown into the woods, the lower jaw being made into a bracelet, while the vertebræ are attached to the end of a pig-tail (specimen shown), and so worn by their fortunate possessors.

As I have appended a table of measurements, made after Prof. Busk's method, and with his valuable instrument, I do not deem it within the scope of this paper to enter minutely into those, referring any one interested to the table, which speaks for itself. The general characteristics of these crania, as evinced by the more important indices, appear to be:—*Latitudinal.*—

PAPUAN CRANIA FROM SOUT

Collected and measured by P. C

PLACE.	Alphabetical Nos.	Sex—Presumptive.	Age.	Cubic Capacity in Inches.	Extreme.			Greatest Breadth.						Radii.				
					Length.	Breadth.	Height.	Frontal.	Parietal.	Occipital.	Zygomatic.	Inter Orbital.	Palatal.	Maxillary.	Fronto Nasal.	Frontal.	Vertical.	Parietal.
Lydia Island.....	A	M.	Adult	83	7.3	5.3	5.5	4.3	5.1	4.2	4.9	1.5	1.3	4.2	3.9	4.6	4.9	5.
China Straits ...	B	M.	„	73 app	7.1	5.	5.4 app.	4.3	5.0	3.8	5.	1.2	1.4	4.1	3.8	4.5	4.7	4.8
Lydia Island.....	C	M.	„	65	6.8	4.6	5.4	3.8	4.5	3.7	4.3	1.1	1.4	4.1	3.7	4.3	4.4	4.5
D'Entrecasteaux Island.	D	F.	„	89	7.	5.4	5.7	4.4	5.3	4.1	5.	1.3	1.5	4.	3.4	4.2	4.7	4.8
Do. (Tub Bay)	E	M.	„	72	6.9	4.9	5.3	4.1	4.9	4.	4.6	1.	1.3	4.1	3.7	4.4	4.6	4.7
Do.	F	Ind	„	75 app	6.6	5.3	5.6	4.2	5.2	3.8	4.8	1.1	1.5	3.7	3.4	4.4	4.7	4.8
Riche Island—(Traitor's Bay)	G	M.	„	64 app	6.3	5.1	4.9	4.2	5.	3.8	4.8	1.3	1.4	4.	3.6	4.2	4.4	4.6
Lydia Island.....	H	M.	„	74	7.	5.	5.5	4.1	5.	3.9	4.9	0.9	1.6	3.9	3.6	4.3	4.7	4.8
Do. do.	I	Ind	„	76	6.9	4.8	5.6	4.1	4.8	3.8	Broken	0.9	1.1	4.1	3.6	4.4	4.8	4.8
Moresby Island...	K	F.	„	69	6.6	4.8	5.3	3.9	4.8	3.6	4.5	1.5	1.5	3.9	3.3	4.	4.4	4.6
S. E. Cape	L	M.	„	68	6.7	4.8	5.2	3.7	4.8	4.1	4.8	1.1	1.4	4.	3.5	4.1	4.5	4.6
Teste Island	M	M.	„	84	7.1	5.1	5.5	4.3	5.1	4.	4·6	1.	1.4	3.7	3.5	4.6	4.9	4.8
Skelton Island ...	N	M.	„	80	6.7	5.1	5.5	4.2	5.	3.8	4.9	1.2	1.3	4.	3.7	4.3	4.6	4.8
Lydia Island	O	M.	„	74 app	6.7	5.4	5.4	4.3	5.4	3.8	4.8 app.	1.	1.2	3.6 app.	3.5	4.3	4.8	4.8
Possession Bay ...	P	F.	„	Broken	6.9	4.7 p	4.8 app.	3.9	4.7	3.4	4.7	0.9	1.4	4.1	3.7	4.2	4.5	4.6
Sums	15	10	Male.	104.6	102.6	75.3	80.6	61.8	73.6	57.8	66.6	17.0	20.7	59.5	53.9	64.8	69.6	71
		3	Female															
Means	...	2	Indeterminate	7.5	6.8	5.	5.4	4.1	4.9	3.9	4.8	1.1	1.4	3.9	3.6	4.3	4.6	

I SOUTH-EAST COAST NEW GUINEA.

ured by P. Comrie, *Staff-Surgeon, R.N.*

Radii.				Length.		Longitudinal Arcs.				Transverse Arcs.				Horizontal Circumference.	Proportion Length = 100.						Nasal.		
Frontal.	Vertical.	Parietal.	Occipital.	Palatal.	Basi Cranial.	Frontal.	Parietal.	Occipital.	Sum of 3.	Frontal.	Vertical.	Parietal.	Occipital.		Of Breadth.	Of Height.	Occipital Radius	Fronto Nasal.	Maxillary.	Facial Angle.	Length Max.	Breadth Max.	Proportion Length = 100.
4.6	4.9	5.	4.3	2.2	4.2	4.9	5.3	6.	16.2	12.4	12.7	12.6	9.4	20.3	72	75					2.	1.1	55
4.5	4.7	4.8	3.9	1.6	Broken.	5.1	4.9	6.2 app.	16.2	12.	12.8	12.8	8.6	19.6	70	76					2.1	1.1	52
4.3	4.4	4.5	3.9	2.3	3.9	4.4	4.8	5.9	15.1	11.6	11.2	11.8	7.6	18.2	68	79					1.8	1.	55
4.2	4.7	4.8	4.2	2.1	Broken.	4.6	5.1	6.2	15.9	11.4	12.6	13.	8.8	19.9	77	81					2.	.9	45
4.4	4.6	4.7	3.9	2.3	3.9	4.6	5.3	5.5	15.4	12.	12.2	12.6	8.8	18.6	72	77					2.	1.	50
4.4	4.7	4.8	3.8	2.1	3.7	4.9	5.4	5.1	15.4	11.8	13.	12.8	9.	19.	80	84					1.6	1.	56
4.2	4.4	4.4	3.8	2.2	3.8	4.5	4.9	Broken.	...	11.6	12.3	12.6	8.6	18.4	81	77					1.9	1.	52
4.3	4.7	4.8	4.3	2.2	3.8	4.8	4.9	6.3	16.	11.6	12.6	12.6	9.	19.1	71	78					1.9	.9	47
4.4	4.8	4.8	4.	2.3	3.7	5.	5.1	5.7	15.8	11.6	12.4	12.6	8.6	18.8	71	79					2.	1.	50
4.	4.4	4.5	3.7	2.1 app.	3.5	4.7	5.1	5.4	15.2	11.	11.6	12.4	9.	18.2	73	80					1.8	1.	55
4.1	4.5	4.6	3.9	2.2	3.5	4.5	5.3	5.6	15.4	10.6	11.6	12.	10.	18.5	72	77					1.7	1.	59
4.6	4.9	4.9	4.1	2.1	3.7	5.3	5.4	5.7	16.4	11.8	12.6	12.8	8.8	19.2	72	77					1.7	1.	59
4.3	4.6	4.7	3.8	2.1	3.6	4.9	5.3	5.4	15.6	11.9	13.	12.8	8.6	19.1	76	82					2.1	1.	47
4.3	4.8	4.9	3.7	Broken.	3.4 app.	5.1	5.	5.4	15.5	12.	12.8	13.	8.4	18.7	80	80					1.8	1.	55
4.2	4.5	4.5	3.5	1.8	Broken.	4.7	5.	Broken.	...	11.4	12.	12.3	9.4	19.	68	70					1.8	.9	50
64.8	69.6	70.7	58.8	29.6	44.7	72.0	76.8	74.4	...	174.7	185.4	188.7	132.6	284.6	1103	1172					...	...	...
4.3	4.6	4.7	3.9	2.1	3.7	4.8	5.1	5.7	...	11.6	12.4	12.6	8.8	19.	73.5	78					...	...	...

With one exception, G, they all may be classed as dolichocephalic, while G may more probably be called sub-brachycephalic; the mean index for the whole number being 74, thus bringing them within the limits of well-marked dolichocephalicism, or long-headed skulls, and although considerable individual variation is shown, still the aberrant tendency is no stronger here than as evinced in other collections, such as those of V. Baer, B. Davis, Meyer, &c. *Altitudinal.*—As regards this index, they all come under the head of what Broca calls megasemic, giving a mean of 78, and thus showing a strong affinity to the negro type. There is also here one exception, P, but which, owing to the base being broken, the measurement of the height was only approximate, and in this way does not count for much. *Nasal index.*—There is here a considerable variation not bearing out Broca's views, seven only being platyrrhine, five mesorrhine, and the remainder leptorrhine. *Capacity.*—This ranges in amount from 64 cubic inches up to 83, giving a mean of 75. *Prognathism.*—This also varies, but in the majority is pretty strongly pronounced. *Peculiarities.*—In A, synostosis of the sagittal suture has taken place, and has given rise to a scaphocephalic deformity. Wormian bones occur in the lambdoidal sutures of E, F, and G. The occipital protuberance is strongly developed in C and O, while the parietal is equally so in D. The denticulation of the sutures generally are more complex than usually occurs in savage races. Generally the result of the measurements would show the strong affinity of the Papuan to the Negro, and not at all favouring the idea of an intermixture with the Polynesian element. Since examining my own collection I have compared the measurements with those of Dr. Meyer, as given in the catalogue of the Dresden Museum (as far as the true Papuan crania are concerned), of which he gives twenty-three collected in Geelwink Bay, the mean latitudinal index being 72, while of ten in the College of Surgeons the mean is 74. The general type of skull is that of an extended, but narrow and compressed form, forehead small and low, occiput flattened, and zygomatic space not extensive. The top in all is ridge-like, a well-marked saggital crest being perceptible. The temporal lines are well defined, and the superciliary ridges strongly developed. The upper teeth project over lower, but are not ground down, and are strong and in a good state of preservation. The height of the skull in all exceeds the breadth. The nasal bones are short and depressed, the anterior nasal openings wide.

Stature.—As the result of about twenty measurements of individuals, all male, I found the height to average about 5 feet $1\frac{3}{4}$ inch, the extremes being 4 feet 7 inches and 5 feet 4 inches.

The mean length of arm averaged 29 inches. The girth of the upper arm 9½ inches, of the forearm 10 inches. The length of leg 35 inches, girth of thigh 18 inches, of calf 12 inches. Circumference of chest 31½ inches. The feet are flat, and legs inclining rather to be bow or sabre-shaped, the calf placed high; in all the large toe was long, and stood out at an angle from the foot, more like a thumb, being capable of abduction and adduction, and the prehensile power thus possessed was frequently manifested in seeing natives attempting to walk off with small objects (to them of priceless value), such as nails, or small pieces of iron lying about the decks, while the attention of the sailors was supposed to be relaxed. The chest was, as a rule, well developed, and capacious in proportion, much more so than the limbs. They appeared to climb trees with great facility, planting the soles of the feet flat against the tree, and alternately in ascent apposing the planes of the hand and soles of the feet, without approximating either chest or legs, and in this way rapidly ascending the smooth branchless trunk of a cocoa-nut tree on all fours, like a cat.* Their favourite attitude was squatting with the hams against the heels, in which position the coccygeal portion nearly touched the ground. While standing, a common position was with one arm across the back, grasping the opposite upper arm. Their gait was shuffling, and in running they were easily beaten by our sailors, and in lifting weights or throwing heavy stones, they were very inferior to Europeans.

Hair.—Grows to about a foot in length, and is crisp and frizzly, in colour black, but often, owing to the use of burnt coral and wood ashes, assumes a reddish tint. The fashion of wearing the hair was varied; in most cases amongst males it assumes what may be termed a mop shape, while others cultivate cork-screw ringlets, and the natives about Huon Gulf and Astrolabe Bay cover it with clay and leaves interplaited, while at Lesson Island it was drawn out to a point at the crown, and confined in a conical case. The true Papuan dandy, however, wears it frizzled out in an immense mop, which is carefully combed out for hours daily, and at night is kept free from disturbance by the use of a wooden block as a pillow, of which specimens, elaborately carved, are shown, on which only the nape of the neck rests. A long comb with flying streamers inserted into the back hair, and a hibiscus blossom placed over the right ear, complete this, the main part of the toilette (specimens of combs and pillows shown). The women and children have their hair closely cropped, the latter often shaved, at least up to the

* "On road the white man walks with creaking shoes,
He cannot walk up trees nor his *finger feet* use."

Translation of Native Song in Mitchell's expedition to Eastern Australia.

age of about ten or so, about which time the rite of circumcision takes place; after which, in boys, the hair is allowed to grow and carefully tended. In some places the women wear false fronts and also ringlets. The assertion is constantly made that the hair, in the case of the Papuan, grows in tufts: this I have been unable to verify, as in the case of the women and children, where the hair was kept close cropped, no trace of this could be seen, although I frequently looked for it. No doubt in those wearing the hair in ringlets, some such appearance is noticeable, but is entirely owing to artificial means. Having collected numerous specimens of hair while on the coast of New Guinea, I was desirous to ascertain whether Pruner Bey's account of the microscopical appearance of Papuan hair was correct. The microscopical appearance, as seen logitudinally, may be described: Cortex more or less transparent, the pigment appearing absent from cortex and confined to medulla—an appearance not usual in the strongly pigmented hairs of white races. Seen transversely, the section is elliptic and flattened, and borders irregular, one of the sides appearing curved inwards at several spots. This gives a distinctive tape-like character, which, as Pruner Bey states, denotes the greatest flattening he has seen on human hair, and quite different to other races in which the section is more or less oval—a point of great significance.* The beard is scanty and crisp, in most cases plucked out and shaved; and as regards the body, with exception of the back of the neck and back, there is no great amount of hirsuteness.

Physiognomy.—Forehead narrow, and compressed at temples, superciliary ridges very prominent, nose aquiline, expanded at alæ, the tip being somewhat elongated, and hiding the upper lip, mouth large, lips thick and protruding, eyes large but superficial, upper row of teeth slightly projecting over lower.

Skin and Colour.—Since Mariner's time, the Papuan skin has been described "as peculiarly harsh." This is not accurate, and only applicable to those suffering from what is known as "Tukelau ringworm"—a very prevalent disease all over the Pacific, giving rise to a scaly condition of skin. I had, while serving in H.M.S. "Dido," a very good opportunity of studying this disease, as affecting natives of New Ireland, while it appears to be endemic as in New Guinea, although the name is derived from Bowditch Island, otherwise called Tukelau, one of the Line Islands, and is a name generally applied to the Line Islanders. As regards colour, the natives of the S.E. coast of

* Through the kindness of Professor Broca I had lately in Paris numerous transverse sections of Papuan hair made by a new process, with which I had hoped to have illustrated this part of the paper, but I have been unable to get the drawings prepared in time.

New Guinea may be said to vary from rusty black to a yellowish brown, while the natives of the immediate neighbourhood of East Cape are of a lightish brown, giving rise to the impression that there has been some intermixture of blood with the lighter Polynesian race, such as is the case in Fijii, where a cross has taken place with the Tongan. This is so probable and easy a solution, that one felt very much inclined to adopt it, especially at first, but after observation, noticing in the same villages and apparently in the same family, individuals exceptionally dark, the features and hair even in the lighter individuals remaining unaltered (which is not the case in the crossing of the Tongan and Fijiian, where the hair becomes much less frizzled), I was forced to the conclusion that the lighter coloured people were the same race. All over the Pacific you find a difference in appearance between coast and bush tribes, such as occurs between the interior Indians of N. America, who live by hunting, and are much darker than the fish-eating coast tribes. If the opinion of the more advanced anthropologists is of any value, viz. that hair, next to language, is the most unerring indication of race, then the identity of the light and dark Papuan is the same, as the hair in both is equally flattened and tape-like, the amount of flattening being so evident that it can be observed with a common lens. As regards the colour of the irides, this varies from black to brown, the sclerotic in all being somewhat of a turbid or yellowish colour. I may also add that a Malay intermixture will not account for change of colour, as we found the higher we advanced up the coast, and the nearer to Malay occupation, the Papuan to become much darker, more negroid in aspect and savage in disposition.

Diseases.—Those observed were elephantiasis affecting the scrotum and lower extremities, the form of ringworm already referred to, and which is believed to arise from the deposit of the larvæ of some dipterous insect: as good observers have stated, swarms of flies have been seen to emerge from the diseased patches, at least this is stated to be the case in Samoa. A few cases of lupus were noticed, and at Humboldt Bay, unmistakeable evidence of syphilis presented itself in shapes of scars on penis, buboes, and cicatrices in groins, the scars being of a lighter colour than the surrounding integument. A few spear-wounds were seen, jagged and torn, and traces of attempted Talicotian operations, where the lobe of the ear had given way under its load of ornaments, and where the edges had apparently been rawed and brought together.

Government and Religion.—In regard to this head very little information could be procured. Each village seemed to be independent and have its own chief; no buildings appeared to be

set apart for any public purpose, and with exception of a small wooden figure generally stuck up in the gable end of the houses, there was no trace of anything approaching idols, or even fetishism. As, however, in some cases bones and skulls, carefully wrapped up, were found in the houses, this may be taken for what it is worth, as regards some form of worship of ancestors, which certainly exists in other Papuan islands, such as Vate or Sandwich.

Dwellings.—These are almost invariably raised upon piles from 10 to 25 feet high, even when built upwards of a thousand feet above the sea level, the position of many of the villages taken in all probability to avoid the malaria of the coast, or for purposes of defence. The gable end where the principal entrance is situated faces the sea, and has a platform in front where the men spend the most of their time. At the other end is also a door and platform used by the women. Access is had to these platforms from without by notched logs. Over the principal entrance is hung bones and skulls of the dugong, turtle, pig, marsupial bones of kangaroo, cuscus, &c., all attesting the wealth of the owner, as showing the amount of provisions he has thus got through, while sometimes human skulls are hung up as indications of his prowess as a warrior, as also of anthropophagic propensities. The interior has no partition, but consists of one apartment occasionally divided by mats hung up, the furniture generally consisting of cocoa nuts for drinking out of, baskets for containing food, large coarse dishes of earthenware for cooking purposes, a wooden pillow or two made out of pieces of solid wood and quaintly carved. Against the wall are arranged spears and clubs, and fishing nets; while in the centre a fireplace is built up of stones on which the cooking is done, the floor being laid with small planks with wide interspaces allowing all rubbish to fall through. The taste of the individual is often conspicuous in many little arrangements, such as stands with hooks for hanging up baskets and other articles, made out of the lopped branches of a dwarf stem, not unlike what we have in our own halls. The only domesticated animals observed were a dun-coloured dog of a wolfish appearance, with long ears and a sharp muzzle, not barking, but giving utterance occasionally to a most dismal howl; the dogs are fed here, as elsewhere in the Pacific, on cocoa nuts, which may account for the long sharp muzzle they all have got; varieties of cuscus, kept as pets, and trained, I was informed by eye-witnesses, to search for vermin in the capillary decorations of their proprietors, abounded in every village. I cannot, however, speak as to this accomplishment from my own observation. The only other domesticated animal was the pig, which was almost allowed to run wild and

was tolerably numerous. The villages were often situated some distance above the sea level and surrounded by groves of cocoa nuts, and where at some distance from the sea, temporary huts existed on the coast for the purpose of residence while fishing and shell collecting: these were much less elaborate in their construction, and not built upon piles.

The canoes all had outriggers, and were frequently of considerable size and length. When from 30 to 40 feet in length, not an uncommon size, they were constructed of a single tree hollowed out, the sides, bow, and stern being built up with planks, the stem and stern having carved figure-heads generally of a bird resembling the cassowary; a raised platform was built amidships, on which the chief was seated, and here also were placed the cooking utensils of earthenware. The sail was of cocoa-nut matting, hoisted up to blocks most elaborately carved to resemble human figures. The paddles were also carved, and were used in the standing position. Catamarans of hewn logs were also common.

Social Customs.—The usual sign of friendship was squeezing the nostrils with the forefinger and thumb of the left hand and pointing to navel with index finger of right, generally making one or two audible grunts during intervals, and sometimes a word was used like vācŏus, but this was rare. On other occasions a dog was brought alongside, and its brains dashed out by taking it up by the hind legs and striking the head against the ship's side, while higher up the coast, waving branches of some kind of palm, and sprinkling the head with sea water, was the equivalent for peaceful intentions. On all these occasions the heralds put on a smile, child-like and bland. The expression of astonishment was a prolonged o-o-o, holding their breath, and stroking gently the left arm with the right. When angry they uncovered the canine teeth and spat, and frequently I have noticed small children alternately yell and spit when in our presence and alarmed. The mode of calling attention was by a prolonged hiss or vigorously striking the left forearm with the sharp edge of the right hand. When disgust was shown, as given rise to by the offer of tobacco or rum, they used to pout, or imitate being sick. Their great expression of friendship was walking hand in hand with those they took a fancy to, occasionally making presents, but always expecting something very much more valuable in return. When on shore they were always ready to supply us with cocoa-nut milk without expecting any remuneration, but alongside the ship a *quid pro quo* was always demanded.

Mourning was signified by the hair being cut short, blackening the face and body with plumbago, wearing no ornaments

except a wicker armlet on left upper arm, while in case of chiefs a series of cords made from Rizomorpha were worn round the neck and hanging over the shoulders like aiguillettes of French officers. The houses in which death took place were pulled down and nothing but the piles and platform left standing, on which the mourners congregated from day to day.

The forms of burial were of two kinds—in one a grave was made in the ground, the surface being slightly raised and planted round with crotons, in the centre of which space broken pottery was placed, while on some neighbouring tree helmet-shells and bunches of human hair were hung. In the other form an oblong box roofed over, and raised on piles about three feet from the ground, contained the body. Both forms of graves were often found in close proximity to one another, generally in the outskirts of the villages. The native name for grave was *vata*. They had great faith in a form of philtre or love charm, which on rare occasions was mysteriously shown, and on which a high value was placed, nothing short of an axe being accepted. It is an odoriferous gum, which they informed us required to be smeared over the face, after the use of which the opposite sex would deny them nothing. This was explained by characteristic signs, the native name being Tūbāl.

The custom of Tabu was in some places observed, carried out by twisting round cocoa-nut branches or placing cocoa nuts on the end of sticks stuck in the ground; nearly all deserted houses had a branch of cocoa nuts placed across the doors. Circumcision was general, and appeared to be performed by a straight incision through the dorsum of prepuce, there being no ablation of supernumerary skin or mucous membrane; the cicatrices left were very unsightly and did not speak at all highly for the surgical skill of the operator. There was no slavery noticed, such as is common in the Solomon Islands and New Ireland, and from what could be ascertained single wives were the rule, who seemed to hold their own, and were invariably consulted on all the trade transactions. They appeared intensely jealous of their women, and on first arrival at their villages the men invariably ordered them all away; not that they wished to go, as very often they could be observed peeping round corners, but after a time they were allowed to return, at first remaining at a respectful distance off, but in course of time by small presents of red cloth to the children we used to conciliate the mother, and in this way were ultimately admitted to the freedom of the village. On the whole they appeared amiable and good-natured, wily withal, and not indisposed to pilfer if they thought they were unobserved, and when detected gave back the article, very good-humouredly treating the matter

as rather a good joke. The division of labour was rather in favour of the men, whose duty seemed confined to house building, fishing, and management of canoes, while on the women fell all the agricultural work, carrying water, cooking, collecting shell-fish, and the general interior domestic economy. Cannibalism was undoubtedly practised, as on several occasions the wearers of lower-jaw bracelets went through the motions intimating that they had eaten the original owner, and on other occasions skulls and bones blackened by charring in the fire were seen. But whether cannibalism was only practiced in the case of enemies, those who had met a violent death or as an ordeal, could not be ascertained. Cannibalism is common in all the Papuan group, as while cruising through the New Hebrides and Solomon Islands, a native of Sandwich we had on board, who had acquired some knowledge of English, used to warn us against landing on certain localities, by saying, "He bad man there, he bite."

Dress and Ornaments.—The common dress of the male, as far as Humboldt Bay, was a T-bandage about 6 inches broad, and secured round the waist by a hair band, or one made from the Rizomorpha root. At Humboldt Bay nothing was worn by the men except a small gourd having an aperture into which the glans penis was inserted. The women wore as far as Huon Gulf a grass petticoat reaching from waist to knees, similar to the Liku of Fijii, being composed of separate strips, and which vibrated in a most ludicrous way when they walked. At Huon Gulf Tapa made its appearance, a strip of which was worn round the loins; sometimes an additional grass petticoat was worn over the shoulders. Tattooing was confined to the women, the pattern being a series of fine blue vertical lines, lace-like in appearance, over chest and abdomen; with exception of this decoration all other ornamentation was the property of the male. The description of one dandy of the period will suffice for all. To begin with, an enormous mop in the shape of a head of hair carefully combed and frizzled out about a foot in length. A comb with flying streamers of pandamus lace, and projecting about a foot, stuck in the crown, the name of the comb being "kōsi," and a hibiscus flower stuck on the hair over the left ear. Both ears being loaded with rings of tortoise-shell or carved pieces of cocoa nut, or a roll of green stuck through the aperture in the lobe. The septum of the nostrils perforated, through which is passed a piece of coral or bone, having also pendants, and known amongst sailors as a *spritsail-yard*. Round the neck rows of teeth, shells, and pieces of aromatic bark are hung; while on the left upper arm, bracelets of banana fibre or shell, into which is

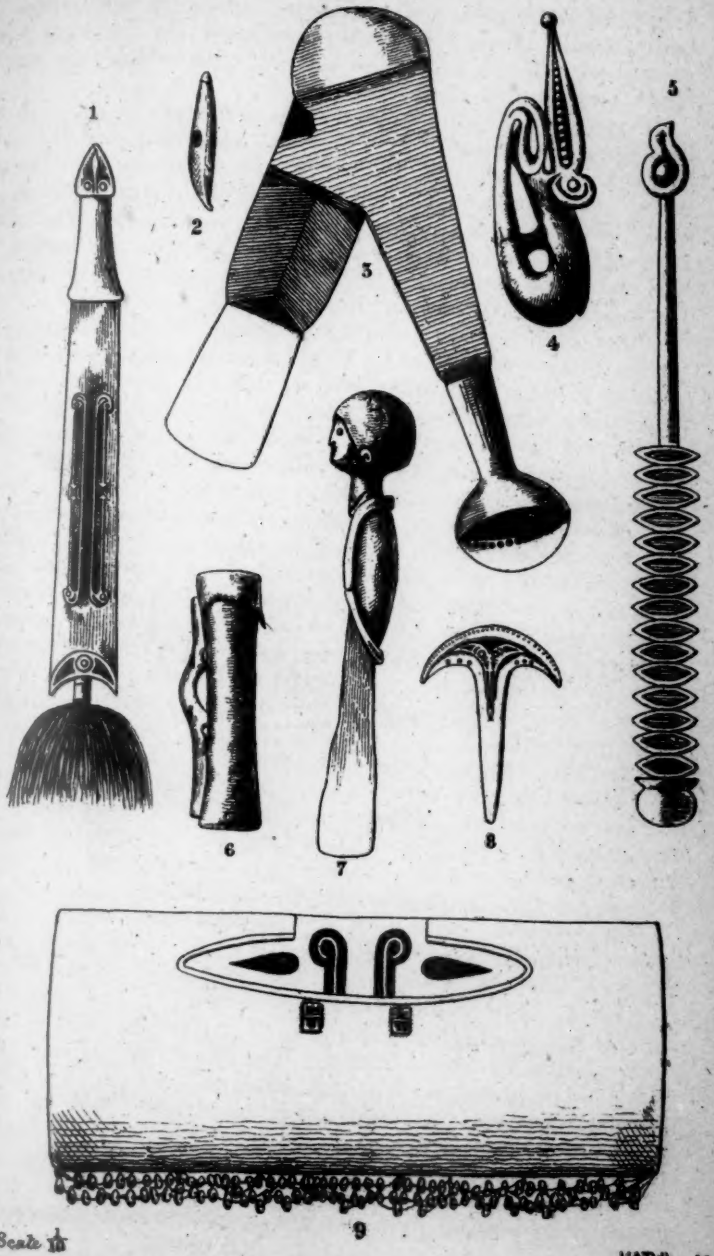
stuck an elaborately carved betel spoon, while over the same shoulder and in the arm-pit a small netted bag containing the betel box, holding the lime, pepper, leaves and nuts, and an obsidian knife, is placed, the ordinary T-bandages fastened by a girdle of ovula shells, kneelets and anklets of the same, and a few streaks of white and red paint over the face complete the get-up in the case of a commoner; while that of a chief had in addition a round plate of shells on the forehead, a long crimped pandamus leaf, treated somewhat as ladies do ribbons and attached to the bracelet on the arm, with a round shell worn over left groin, all of which were characteristic of rank. Of course there was individual taste displayed in choice of ornaments, such as cassowary and bird of paradise feathers, which in some places were worn as headdresses, and all displayed a great desire to obtain pieces of red cloth, which they twisted amongst their hair, and which they were always clamouring for, calling it "Tara-Tara."

Implements and Instruments.—All their tools were of stone, iron up to our arrival being unknown. They, however, soon found out the superiority of our tools, and were most anxious to possess any sort of iron, such as pieces of iron hoop, which they sharpened and hafted in the same way as their stone tools. These were of three kinds, an axe made of polished stone (nephrite) and set obliquely in a handle, frequently elaborately carved, adzes of the same material, and chisels; with the axes they cut off the branches of trees and chop through the bark, using fire for felling down, while the chisels were used as wedges, and the adzes to hollow out and trim the planks to the required form. At Lesson Island, adzes made from the Tridacna shell were obtained similar to those in use at Ualan and some of the Line Islands. To their own stone axes they applied the name of "tauchaman," but to ours "elam," iron being generally called "dim-dim." They carried their axes always with the handle on chest and stone resting on side of neck. The stone was apparently found in the beds of rivers, as on one occasion I was able to procure the unpolished material in its primitive form and water-rolled. The process of manufacture was rubbing down to the required shape on a piece of coarse sandstone, blocks of which were to be found in every village, grooved and scored from constant friction. As on this occasion the canoe from which the above were procured was loaded with adzes and axes in different stages as regards finish, the presumption may be hazarded that there is some attempt at division of labour or artizanship amongst this otherwise primitive people. The only musical instruments found were a drum made from the skin of a large lizard (monitor), called boila, Pandean pipes, two varieties,

a bamboo jews-harp, and a trumpet made by perforating a triton-shell; noises were also produced by striking the ground with pieces of hollow bamboo, with which they sometimes accompanied their songs.

Weapons.—These consisted of clubs with stone heads, of three kinds, one disc-shaped, called "quepi," one round, and one stellate. A wooden club, resembling the patoo-patoo of the Maoris, called "yera"; a wooden sword called "sāmān"; a spear, about 10 to 12 feet in length, the point of wood sometimes barbed, and thrown from the hand with a quivering motion (no thrower in use) and called "kākīām"; slings made from the Rizomorpha or banana, and carried round the neck, the stones used being ordinary beach pebbles, the native name for the sling being "wam"; these and a wooden shield were the only weapons met with up to arrival in Astrolabe Bay, where bows 5 to 6 feet long first made their appearance, the string a split piece of rattan, and the arrow a reed of about 6 feet long, pointed with bone. When in use, one end of the bow was grasped by the right great toe—no poisoned arrows were seen. The only occasion when an attack of a warlike nature was observed, took place at Traitor's Bay, entrance to Huon Gulf, the attacking party advancing in two lines, one armed with spears, the other with clubs, carrying shields, singing a war song, blowing conches, and beating drums. A naval engagement was also witnessed off East Cape, in which only slings and stones were used, no attempt at either ramming or boarding taking place, the air being darkened with stones, neither party coming to close quarters, but both retiring in good order, after about half an hour's engagement. The traces of war were always to be observed by the decapitation of cocoanut trees, being the method adopted by the enemy for cutting off the supplies; but no extensive devastation was noticed, war being only between one village and another, extensive combinations not existing, a feature favourable as regards future colonisation.

Food.—On the slopes near the villages numerous small clearings were to be seen neatly fenced in, on which yams, sweet potatoes, saro, plantains, maize, and other esculent plants were cultivated. The ground was first cleared by fire, and then broken up by digging with pointed sticks, the latter being accomplished by female labour. The cocoa nut and sago palm being their principal stay, pig, kangaroo, cuscus, and turtle forming only an occasional addition to the bill of fare. In the main they appeared to be vegetable feeders, a sort of vegetable soup, composed of yams, plantains, grated cocoa nut, and sago constituting their usual noonday meal. This was prepared by heating over the fire in earthenware vessels, and



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was the only form of cooking practised, as far as observed. The spoon used was a valve of the pearl oyster, the native name for which was "kēnāi," pig was called "poro-poro," water "kai wan," and to eat "nam-nam." The use of betel was universal all along the coast, but no other form of stimulant was observed; tobacco in any shape they would not touch, and were evidently unacquainted with its use. They were also unaware of the preparation of palm toddy, so common among the Malays. Heaps of screw-shells were observed at the edges of lagoons, forming a sort of kitchen middens, and traces also of native encampments, resorted to at certain periods of the year, evidently to collect such food.

Such are the few notes I have attempted to throw together of every-day life, as observed amongst a primitive people where the introduction of civilisation has not taken place and effaced, as it has elsewhere, the condition of early childhood from off the largest portion of the world. I hope, in conclusion, that others, with better opportunities and increased knowledge, may explore further, without delay, this field, rich in survivals of primitive life, which will soon pass away with the improvements the colonist of the southern hemisphere brings in his train.

Description of Plate I. Vol. VI.

Objects from New Guinea.

Fig. 1.—Wooden sword or club, with plume of cassowary feathers at the end, carving on one side.

Fig. 2.—Gourd ornament, worn by the male natives.

Fig. 3.—Axe with green stone fixed into it.

Fig. 4.—Pulley used in boats.

Fig. 5.—Wooden sword or club.

Fig. 6.—Small drum, with head of iguana hide.

Fig. 7.—Carved wooden stirrer for sago.

Fig. 8.—Betel spoon.

Fig. 9.—Shield, with carved ornament and fringe of cowrie shells.

Many other objects, as pillows, human jawbone bracelets, combs, armlets, earrings, &c., amongst those exhibited, have been already figured in the voyages of H.M.S. "Fly," London, 1847, and H.M.S. "Rattlesnake," London, 1852, and also in a Dutch work, by the Netherlands Indian Commissioners, published at Amsterdam, 1862.

Discussion.

Col. Lane Fox said: The present paper is, I think, one of the most valuable the Institute has lately received. It is not often that we have original observations upon an entirely new tribe,

and still less often are those observations made by so competent an observer as Dr. Comrie. Amongst the points most worthy of notice are the remarks upon the hair of this particular branch of the Papuans. We had been led to suppose that the hair grew in tufts like the bristles in a shoe-brush, but Dr. Comrie's observations tend to the view that this peculiarity was the result of the mode of dressing, and not congenital. His remarks upon the section of the hair appear to tally very accurately with the researches of Dr. Pruner Bey, which seem to show that the long-sectioned, tape-like formation is common, more or less, to the whole of the black, long-headed races of mankind, whilst that of the yellow round-headed Mongols is distinguished by a round section, and the Melanochroi by a more or less oval form, with greater or less varieties of elongation. We remember how, some time ago, anthropologists were amused by the coincidence noticed by Dr. Thurnam and others, viz. long heads in long barrows, and round heads in round barrows. Now, viewing the general tendency of the facts adduced in Dr. Pruner Bey's table of hair forms, it would almost seem as if we were coming to the conclusion of long heads, long sectioned hair, round heads, round sectioned hair. Dr. Comrie thought that the peculiar long form of the snout of the Papuan dog had been developed through natural selection, from their habit of feeding on the fruit of the cocoa nut; but if this were the case, we ought to find the cocoa nut largely distributed over the Arctic region, for the snout of the Esquimaux dog was of the same long form. Might we not rather attribute this to the fact that the dogs of savages, in all parts, were of an earlier or less cultivated type, and showed more affinity to the wolf than the more civilised specimens of the canine race. Dr. Comrie noticed that in New Guinea, as in other islands of the Pacific, the coast tribes were fairer than the inhabitants of the interior, and he seemed inclined to attribute this rather to local causes, such as feeding upon fish, than to admixture of race; but although we must attach great weight to an opinion so carefully formed upon the spot, I think we must hesitate before accepting this conclusion. It may be remembered that not long ago Dr. Mullens, in an interesting paper on the inhabitants of Madagascar, noticed a somewhat analogous distinction between the colour of the coast and interior tribes of that island, the coast tribes being, however, in this case, the darker of the two. This Dr. Mullens was also inclined to account for by purely local causes, the inhabitants of the low, feverish coast districts having acquired a darker hue than the inhabitants of the interior highlands. But may we not here see another cause operating to produce this result? In Madagascar the immigrants from the continent of Africa were a black race, whilst in Papua the immigrants from the eastward were a light race. Hence the difference observable in the two regions, the coast tribes, being of necessity more exposed to the effect of crossing, approach in both cases to the colour of the immigrants. That such connection with foreign races has actually taken place in New Guinea follows, I think, as a certain result of the fact that

throughout Polynesia the canoes which conveyed the different races from island to island were of the same form, the outrigger, in one variety or another, being prevalent throughout. There is also an almost perfect identity in certain forms of ornamentation in New Zealand and New Guinea, which seems to afford proof that frequent intercourse between those islands must have existed in former times. One more point in Dr. Comrie's valuable paper we must notice here, his view that hair, next to language, is to be regarded as the surest test of race. I think it can hardly be admitted that language is in itself at all a test of race, although undoubtedly race and language must frequently have flowed in the same channels. Dr. Sayce has, I think, fully disposed of the view that language could be taken by itself as evidence of racial connection, in his paper upon that subject.

Mr. Bouverie Pusey said: The account of the New Guinea dog, in the interesting and able paper which had been read, reminded him very much of the Australian dingo, and he wanted to know whether Dr. Comrie thought there was any connection between them; also whether the New Guinea domestic hog mentioned in the paper had any connection with a peculiar species generally supposed to inhabit New Guinea, and called Papuiensis.

Lieutenant Armit, R.N., said: Dr. Comrie, after rather numerous and exact observations, made while serving on board H.M.S. "Basilisk," has furnished this meeting with some most valuable anthropological notes on the natives of the south-eastern peninsula of the island of New Guinea. Not the least remarkable of the facts now brought to light is the "rite of circumcision," practised by the Brown Papuans, among whom Dr. Comrie's observations were made. In Australia, and I believe also in New Zealand, and in some of the islands of the South Pacific Ocean, this *historical rite*, if I may so call it, is not unknown. As far as I can learn, the Papuans are divided into four peoples, and each people is subdivided into tribes, which are constantly at war with each other, only uniting to resist the attack of the neighbouring nation, if I may so call them. These peoples are:—(1) The true Papuan or Frizzly Head of the west and south-west coasts; (2) The Alfoerer, or Hoorafora, forming the hill tribes of the interior; (3) The Brown Papuans visited by Dr. Comrie; (4) The Papuan-Malays of the north coast, subject to the authority of the Sultan of Tidore, and professing Mohammedanism. The following brief *resumé* of Dutch exploration during the present century may not be uninteresting. The geographical knowledge in our possession regarding New Guinea goes to show that the southern shores of that island abound in low swamps covered with mangrove trees, but that its south-eastern extremity and northern coasts are bold and steep, their cliffs plunging vertically into the waters of the Pacific Ocean to a depth at times measured by hundreds of fathoms. Stretching away from these cliffs into the interior are plains and plateaux which rise gradually to form mountain ranges with altitudes varying from 5,000 to 14,000 feet at some 30 to 50 miles from the coast. Beyond

these mountains still higher ranges exist whose summits are covered with clouds, which render it impossible to accurately determine their altitudes, which in places has been ascertained, as shown on the Admiralty chart 2,759A, to be over 16,000 feet. This high range forms the backbone of the island, and runs from Mount Owen Stanley (13,000) in the south-east to the Charles Louis mountains in the north-west, of which the most distant peak visible from the seaboard is 16,730 feet. To the southward these hills are obscured from view by a high coast range, from the foot of which some thirty or forty miles of mangrove swamp runs into the Torres Straits and Gulf of Papua. These mud flats are again cut up, by the streams descending from the mountains, into innumerable islands, and these streams, at times uniting, have cut wide estuaries for themselves into the sea. Off the mouths of these estuaries islands have in many cases been formed by the *debris* forced out by the river. In some places, such as Hall Sound, high islands, such as Yule Island, appear to have been thrown up by volcanic action. Such a locality must needs be a hotbed of fever, and all authorities on the subject agree in holding the southern coast of New Guinea to be unfit for European habitation. But the north and north-east coasts present fair prospects of affording both a healthy and pleasant climate. In 1828 the Government of the King of the Netherlands took possession, by proclamation, of 118 miles of the south-west coast of New Guinea, abreast of Port Essington, on the north coast of Australia. The Dutch corvette "Triton" was sent to survey the new territory, and was the first expedition to visit the island since the days of Captain Cook. It appears to have met with a very friendly reception from the natives, which was in strange contrast to the experience gained of this same people by the early navigators of these regions, if the names with which they baptised their principal discoveries can be taken to represent the treatment they received. Thus, one of the large rivers discovered in early days was called "Moordenaar," or "murderer;" another they named "Doodslaager," or "slaughterer." Captain Cook was little less fortunate when he visited its shores in the "Endeavour." Indeed, no record exists of friendly intercourse having been held by Europeans with the natives of the south and south-west coasts until the year 1828, when the Dutch Government, during one of those spurts of colonial activity which seem to attack western nations periodically, despatched the "Triton" to survey its newly-annexed territory, with a view to founding a settlement thereon. Reaching the western peninsula of New Guinea, this expedition discovered a remarkable range of mountains which rise nearly perpendicularly out of the sea to a height of 5,000 feet, and form a lofty backbone to the island, and which apparently runs through its centre from west to east, as it is again found in the south-eastern peninsula, where Mount Owen Stanley attains an altitude of 10,000 feet, and then gradually runs down into the Pacific Ocean in Milne Bay, lately surveyed by Captain Moresby, of the Royal Navy. The Dutch officers named this range the "Sneewe Bergen," or Snowy Moun-

tains, owing to three remarkable table-topped summits some sixty miles inland, computed by them to be 20,000 feet high, appearing to be covered with snow. This range creates a basin in the southern half of the island, within which the drainage from the mountains would form swamps and lakes, or lagoons. Should the coast range be a "broken range," these reservoirs would feed large rivers, such as that discovered by McFarlane, and named the "Baxter," while the reservoirs themselves would ever be replenished by the snow-clad summits, and impenetrable mountain sides arresting the warm, moist south-east trade wind of this region, which, having travelled over the South Pacific Ocean and absorbed all its rising vapour, would now find itself arrested in its course towards the Equator, and would then be forced to deposit its moisture over these very mountain slopes. This would account also for the extensive mud flats and mangrove swamps of the southern and south-western coasts of New Guinea, wherein the decomposing vegetable matter is of itself sufficient cause to produce epidemic diseases. It was on the south and south-western coasts that the Dutch Government determined on forming its first settlement; and in 1828 a landing was effected, at the urgent request of the natives themselves, in Triton Bay. The swampy nature of the land on which the fortified village was erected, and the oppressive nature of the atmosphere, owing to the inlet receiving no sea breeze, seem to have foreboded the fate of this Dutch settlement even before the garrison had been landed. It was abandoned in 1838, when the garrison was removed to Wahaai, a small port on the north coast of Ceram, which was much frequented by English and American traders. During the ten years that the Dutch remained in Triton Bay among the Outanata tribe of Papuans the most friendly relations existed between the two peoples. Theft was never heard of, and no single act of hostility ever committed. The presence of the Dutch was a check on the Malay, Chinese, and Ceramese semi-piratical expeditions which, under the guise of traders, periodically visited these parts, but who in reality were slavers and pirates of the lowest class. Since the European settlement on this coast was abandoned these expeditions have again made their appearance, but as they do not enter the Torres Straits very little is ever heard of them. In 1850 the Dutch Government, having purchased the right of "suzerainty" over the northern and part of the north-eastern coast of New Guinea from the Sultan of Tidore, sent Lieutenant Bruijn Kops, in command of the "Circe," and an expedition, to found a settlement in Humboldt Bay. This expedition was not successful, and all it did was to erect posts supporting metal shields embossed with the Netherlands coat of arms at various points along the coast. A gale from the south-east and the strong lee current which here prevails drove it back to the island of Gilolo. In 1852, however, the settlement was effected, and Port Humboldt was proclaimed a Dutch colony. The garrison of the new colony was ill-chosen. It consisted of a party of burghers, or native militia, of Sernate, a people by no means

calculated to inspire respect in the stalwart and energetic Papuans of this coast. In Triton Bay the Dutch had to contend against obstacles which no human force could overcome, but which human foresight might have avoided. In Port Humboldt the Dutch entered upon new ground. Here no obstacles barred their way to success, but the cruelty and rapacity of their boors so incensed the natives that a desultory war was the result. The natives of the coast were either butchered or were driven to take refuge among the hill tribes, to whom they became slaves, and the cruelty of the Dutch has thus become proverbial along the whole length of the north-east coast of New Guinea. These natives the English Government claims as its subjects, and yet they know it not, but live in daily fear of their sworn enemy descending upon them, unaware of the fact that an imaginary geographical line of demarkation protects them from the enemy they so much dread. When the Dutch first visited these parts they found the natives inclined to be most friendly, and were received with open arms. The following simple narrative of Lieutenant Bruijn Kops is most strikingly illustrative of the then existing state of feeling:—

> One evening when we went on shore all the children of the village were collected together, and beads were thrown among them. Not only the children, but women, men, and even some of the chiefs scrambled for the beads, and ran from every quarter to obtain a share. All were on their knees in the sand, and showed how much they prized these presents by the zeal and attention with which they sought for them, and by their merry laughter when they were fortunate. Although these beads were of great value in their estimation, the scrambling was carried on without the personal contests which in civilised Europe would have been the result of an unequal distribution of presents. Walking along the beach after this distribution, I entered into conversation with a native who had learned a little Malay, and who invited me into his house, where I was led into the room which serves as a dwelling-place for the family. I thought all the women would take to flight, and was not a little surprised to find that they sat down close to me, and observed me very attentively, but without troublesome intrusion. Thus I sat in the midst of six women, three of whom were young, and whom, on account of their beautiful eyes, clear, white, and regular teeth, happy, laughing faces, round shoulders and arms, fine hands, beautiful bosoms, and well-formed limbs, deserved the name of beautiful, not only in the eyes of Papuans, but also in those of Europeans. The frankness with which I was received struck me, as it was entirely unexpected. They brought me a dish of papeda (sago-flour steeped in water), some roast fish, yams, and fruit, requesting me to partake of it, which I did to please them. Seeing a ring on my finger, one of the girls tried to draw it off to examine it, but not succeeding, I drew it off myself, and handed it to her. After examination it was returned to me with care. I mention all this because the familiarity with which I was treated astonished me, and gave me a very favourable opinion of these people.

Australia is separated from New Guinea by the Torres Straits, only some 80 miles broad. The geological formation of the southern portion of New Guinea is said to be identical in character with that of the Australian Continent. Thus, by reason of their proximity, and their possessing so many natural resources in common, these two island continents may be said to be one territory; and Nature herself seems to suggest that the power which already holds sovereignty over the one should also have dominion over the other.

Mr. Hyde Clarke and other members joined in the discussion, and Dr. Comrie, in reply, said: Colonel Lane Fox's remark, that all over Polynesia the canoes had outriggers, was not quite correct, as the canoes of the Solomon Islands had no outriggers, and were large and well constructed, in fact, models of boat-building as regarded their lines and graceful appearance on the water. He was unable at present to answer the question as to whether the Papuan pig was a distinct species, or, as suggested by Professor Huxley, derived from the westward. He had, however, given a specimen of the skull to Professor Flower, whose opinion he trusted he would be able to state at some future meeting. With regard to circumcision, the custom appeared to be universal all along the south-east coast, and he believed the operation was performed with a piece of obsidian. The tree-climbing he had often seen, and no band was ever used round the body, but the natives seemed to run up like cats, no doubt aided by the great mobility and prehensile character of their toes, which enabled them to hold on without requiring to bring any other part of the body into apposition with the tree, except the hands and feet. With regard to Captain Lawson's book, he did not believe that there ever was such a person, or that he had ever been to New Guinea; the book was a myth and romance from beginning to end. He would only refer to one statement, that of ascending a mountain 25,000 feet high in a day. He need only appeal to anyone who had any Alpine experience, as to the wildness and improbability of this. Why, he had known, in ascending only 1,000 feet through what was considered open country (with exception of the dense grasses that towered feet above one's head, and in getting through which one's hands and face were cut to pieces), owing to the heat and moisture, the strongest men of the party exhausted and forced to rest before reaching the summit, nay, in many cases positively sick. As regards the Jewish descent of the Papuans, this statement was made of races in all parts of the world, and the early navigators and travellers were always looking out for traces of the lost tribes, in fact, he believed Dampier states there existed a white colony in New Guinea believed to be the identical lost tribes that have been so long an ethnological puzzle. As regards the dwellings pulled down on the occasion of a death, the stay of the ship was too short to admit of observing whether they were ever erected again. As regarded the language, he thought it strongly bore out the bow-wow and pooh-pooh theory, as the name for a pig was poro-poro, dog bow-wow, axe dim-dim, and eating nam-nam, all suggestive of onomatopœa.

Mr. Brabrook read the following paper for the author:

Notes *on the* Politics, Religion, *and* Commerce *of* Old Calabar. By James Broom Walker.

The government of Calabar is an oligarchical government. Every district has its nominal king elected by the freemen, who

acts as the executive authority in his own district, and as the mouthpiece of the community in intercourse with other powers. These freemen, who constitute the chiefs, form a kind of privy council, which meets with the king daily, or as occasion requires. In consequence of the vast majority of the inhabitants of Calabar being slaves, the comparatively few freemen of the country would find it difficult, if not impossible, to govern with anything like effect, without the appearance of possessing some power superior to their own, hence the institution called *Egbo*, which is the supreme power in the country. The natives are not fond of communicating information to the Europeans in regard to this institution. They wish it to be considered a very sacred thing, and strongly endeavour to impress the slave population with the idea that it has a very intimate connection with the supernatural. The freemen represent *Egbo* to be a supernatural being, who lives in the bush, and whom they can summon to their aid on any emergency. Hence when they wish to proclaim any new law of importance, the parties making this proclamation are accompanied by a number of grotesquely dressed individuals, who are supposed to be emissaries from the great mysterious power residing in the bush, and frequently these same emissaries, who are known by the name of *Idems*, are summoned to inflict punishment for any violation of the *Egbo* law. The freemen of the different towns, and even those belonging to the same town, however much they may be at variance with one another on other matters, are remarkably unanimous in support of their *Egbo* institution. The principle of self preservation inspires unanimity. The whole institution is a striking illustration of the old adage that union is strength. The *Egbo* institution, divested of its mystery, seems to be a friendly society for mutual protection among the freemen. The internal economy of the friendly society, or *Egbo* institution, appears to resemble that of the *freemasons*, inasmuch as there are different grades. These are nine which belong to this institution, and are termed respectively, from No. 1, the highest, to No. 9, the lowest.

1. Nyampi 2. Oku Akana 3. Brass 4. Makanda	300 boxes brass rods, each £2 9s. =£735, for the first four grades.
5. Makara 6. Mboko Mboko 7. Bunko Abonko 8. Mboko Nya Ekpo 9. Ekpe	50 boxes brass rods for each of the lower grades.

Admission into all the grades is by purchase; the higher the grades the more costly. Only freemen are permitted to be purchasers of the highest four. The half freemen, that is, those who are born in the country of slave parents, are permitted to buy all excepting the four first. Purchased slaves can buy the two lowest grades. Europeans can buy all, the same as the freemen. The entire cost of the nine grades to a European is considered to be about from £1,000 to £1,300. The only advantage to a European trader purchasing *Egbo* privileges, if it can be called an advantage, is thus: The individual so purchasing them can give out goods on credit to the native traders, and if any one who takes the goods fails in making payment of produce as stipulated, he can summon *Egbo* to take possession of his house property and slaves, and dispose of them to realise the amount of debt due. The origin of this *Egbo* it is difficult to discover, as the great body of the natives themselves do not know. We have lost many of the traditions of our own country, and no wonder an unwritten history should be forgotten. The legislature of the country consists of the kings and chiefs, and without the influence of this *Egbo* institution would be powerless, as they have neither military nor police establishments to carry their decisions into effect, so that in point of fact *Egbo* is the only equivalent they have for a police force which the king and chiefs have at their command. There is one feature specially objectionable in this *Egbo* institution, which has been long reprobated by the missionaries and other Europeans residing in the country, namely, the flogging of the innocent women and slaves. It is thus: The *Egbo* runner frequently makes his appearance suddenly and unexpectedly in the town, having a large bell attached to his back, which is rung by his motion as he runs about to give signal of his approach, and he unmercifully flogs with a whip made of cowhide any one but those who have purchased the grade which he represents. The *Egbo* runner of the highest grade flogs even the freemen who have purchased the lower grades, in order to compel them to purchase the higher grades. The great object of the exhibition of the *Egbo* runners is to keep the slave population in awe of the *Egbo* power. All business must be suspended, which is another evil, and all the doors shut, and silence maintained through the town during the time that *Egbo* has possession of it, and when he takes his departure the town bell is rung in a peculiar way to intimate the same to the inhabitants, when business is resumed. The stoppage of business on these occasions may last for a day, and frequently two or three days, but in such cases it is suspended for an hour or two, to permit the daily market to be held, although at other times the *Egbo*

runners will rush out into the markets, disperse the people, and seize their goods.

Each grade of *Egbo* has its own king and officers, and the runners may be called out at any moment to parade the town, which means possession for the time being, without any warning being given to the inhabitants, which causes great confusion and destruction of property; those who may be coming from the market with head-loads of native produce or European goods, must throw them down, and run as it were for their very life, and if caught, get flogged, it may even be to death; such cases have been known. European influence, however, has tended to mitigate this evil considerably, as well as many others.

From the foregoing remarks on the *Egbo* institution, you will have gathered that it is admirably fitted for the purpose in view, to wit, the keeping of the slave and female portion of the community in subjection. The impression that there is a mysterious power which can be invoked at any hour, for the punishment of rebellious slaves and fractious wives, must have an influence on their conduct which, in the present state of society, could not be obtained otherwise. However, it would be much for the benefit of the country were this system of oppression abolished and just laws instituted in its place. I have thus endeavoured to give you an idea of the politics of the country, and will now glance at what, for want of a better term, we may call their religion. In the first place they have a sort of belief in the existence of a supreme being whose name is Abasi. We infer that they have some dim idea of his *greatness* from the fact that they have an adjective meaning great or grand—that adjective is *Ibum*, and is applied, in so far as we know, to two objects *only*—the one is the ocean, which they call Inyang Ibum, and the other is God, Abasi Ibum. We interpret the word in both cases to mean great and incomprehensible; they have an idea that he is in some way the maker and preserver of all things, but they have no correct apprehension as to his character and operations in the universe. They seem to think that he is too high to take notice of *all* the little affairs of men; hence they assign a separate divinity to each district in the country. For instance, *Calabar proper* is under the guardianship of a god called *Ndem Efik; Old Town* has *Ansa; Henshaw Town* has *Nsumko Munko; Ekremenbo* has an *Antika; Tono Shots* has *Ntan Ntan; Qua Town* has *Nim;* besides, each house has its own object of superstitious regards.

On entering into the yards, you will see a mound in the middle of them with skulls of men and dishes—that is called *Isu Abasi*, where the women may be seen offering their oblations. In a corner of the yard you may observe a multitude of bones

of all kinds, fish, birds, fowls, &c., where the men frequently offer sacrifice of the blood of goats and fowls. This is called *Isu Ekpo*. *Ekpo* means the state of the dead when they worship and sacrifice to the spirits of their progenitors. There may be observed also in the yards a stick or a pole surmounted by a human skull, which is styled *Ekpenyong*, and, besides, sundry images may be seen in different places; these are called *Ibök*, or doctor, to which application is made for the preservation or restoration of health. Other objects of superstitious regards may be seen in their farms and on the roads, such as eggs, plantains, bananas, yams, &c.; these are placed as charms for the protection of their crops, and of the wayfarers. Their ideas in regard to a future state are very vague; they appear to imagine that the condition of the departed spirit is pretty much of a counterpart to what it has been; they have an idea that the spirits of the departed return and visit the scenes that they formerly occupied; and that they have the power of inflicting harm on the person or property of relations and friends who may have failed to have shown sufficient respect to them after their death—that is to say, those who have not put sufficient property into their graves, or sent a sufficient number of wives and slaves after them to wait upon them in the other world, or who have not made for them what is called a "grand devil-making." The manner of sending wives and slaves after them is by killing them and burying them. *Devil-making* means funeral ceremonies, which is nothing more nor less than devoting a very considerable amount of property to revelry and dissipation. I have seen as much as £100 worth of goods thrown into the grave of one chief by the side of the coffin, nearly reaching the surface of the ground. The graves are made almost invariably inside their dwellings, especially the freemen and men of wealth. One lamentable thing in connection with the death of a chief is the virtual imprisonment of his widows until the termination of the funeral obsequies, which imprisonment may last for several years. The prisoners are strictly forbidden all intercourse with the outer world, and not allowed to wash their bodies or change their scanty raiment, and numbers who have no friends outside to supply them with the necessaries of life, die during the period of such unnatural incarceration. I may mention here that human sacrifices have been abolished, and that through the influence of the Bible and the missionary of the United Presbyterian Church, a number of their superstitious customs have fallen into disuse.

I have thus far given you a description of the politics and religion of the Calabar tribe. I will now proceed to

lay before you a few statements with regard to its commerce. Since the abolition of the slave trade, before that time Calabar was one of the most noted rivers for trafficking in human beings, as Clarkson's History of the abolition of the slave trade abundantly shows; but now *palm oil* is the chief article of export, which is principally procured from the neighbouring tribes, Ibibio specially. The Calabar people do not manufacture much themselves, but they act as merchants between the producers and the Europeans. There is also *ebony*, *ivory*, and *barwood* among the articles of export, but not to a large extent, and of late *palm kernels*, which formerly were thrown aside as useless, have been exported in considerable quantities. The country behind, which has not yet been explored to any extent, is doubtless possessed of many articles which would add to the list of exports, if procurable, such as *india-rubber* and *shea butter*, and it is the conviction of the writer that gold also is to be found in the mountainous districts; but exploration is difficult on account of the reluctance of the Calabar tribe to permit Europeans to enter the country, so that its wealth remains unknown. This vast region of unexplored territory all round presents a fine field of operations for the traveller, the geographer, the geologist, the philologist, the philanthropist, the merchant, and the Christian, making Calabar the basis of operations.

Mr. BRABROOK remarked that the use of the supposed supernatural power of Obo to enforce a civil claim had a curious parallel in the proceedings of our own ecclesiastical courts, who took upon themselves, by a suit *de lesione fidei*, to excommunicate anybody who failed to perform a solemn promise for the payment of money or otherwise; and in those days excommunication, especially when backed by the writ *de excommunicato capiendo*, was no unreal terror.

The PRESIDENT and Mr. HALIBURTON made some remarks, and the meeting separated.

APRIL 25TH, 1876.

Colonel A. LANE FOX, *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

Dr. COMRIE made some further remarks on his exhibition of objects from New Guinea, which had remained on view in the rooms of the Institute since the previous meeting.

The following presents were announced, and the thanks of the meeting were voted for the same, viz.:—

For the Library.

From the Society.—Bulletin de la Société Imperiale des Naturalistes de Moscow. No. 3, 1875.
From the Editor.—Archiv für Anthropologie, Feb. 1876.
From the Society.—Journal of the Royal Geographical Society for 1844, 1847, and 1848. Proceedings, ditto. Vol. I. Nos. 1, 5, 6, 7, 8, 9, 11. Vols. II. and III.
From the Academy.—Verslagen en Mededeelingen der Koninklijke Academie von Wetenschappen. Dl. IX. Jaarbock, ditto, 1874; Processen-Verbaal, ditto, 1874-5.
From the Association.—Transactions of the Social Science Association, 1875, Brighton.
From the Society.—Proceedings of the Asiatic Society of Bengal, No. 10, December, 1875; Journal, ditto, Part 1, No. 4.
From the Editor.—Revue Scientifique. Nos. 42 and 43, 1876.
From the Editor.—Nature, to date.

The following paper was read by the author:—

The Origin *of* Numerals; *or the* Object-Origin *of* Prehistoric Thoughts *and* Ideas *illustrated by the* History *of the* Invention *of the* Art *of* Calculation *and some other* Useful Arts. By A. Tylor, F.G.S.*

No writer has, I think, yet referred to the evidence that the sources of early thoughts and inventions have been principally derived from objects, and that some of the most valuable new thoughts have also an object-origin. The struggle for existence impelled early men to invent, as it does the present generation. The accepted theory of association of ideas presupposes junctions of different lines of thought, that is, ideas already originated being carried over from one track of thought to another. My object is now rather to treat of fundamental ideas and their derivatives. The early thoughts, such as we shall principally consider, are of a trunk or basal character, and we shall find they have a very definite course rising in the earliest times and continued on with successive modifications up to the present time. Observations of new objects and their consideration and results of combinations or deductions under definite laws are the only material means or source of inducing new ideas and of promoting new thoughts and inventions now as it has always been.

The inventors of all ages proceed from the known to the unknown by analogy, deductions, and analysis. All nations appear to have commenced counting with gesture-signs on the

* A portion of this paper having been communicated to the London Institution, and printed in a supplement to their Journal, it is now printed in a somewhat abridged form.

fingers to express successive numbers, then to have coined words from the hand, fingers, toes, &c., for the numerals. The digits are a series increased by a constant difference. That is, the differences between the successive digital numbers are all alike in every human language. This principle is the foundation of Babbage's difference-engine; that is, eight is as much greater than seven as seven is than six, and so on. No nation ever proposed unequal differences between the numerals. They are always increased by unity. Nations used letters or arbitrary signs instead of words previous to the invention of the Indian signs which we call figures, and which contain the cypher, or ought, a device or invention unknown to the ancients. The decimal notation derived from the number of fingers has been re-invented very often. That fact proves the universality of the direction of thought, and that it has been always influenced (in this important subject) by natural objects, and was not developed from preconceived ideas. (Perhaps the term preconceived idea is a bad one, because every idea must have a definite origin.)

An object-origin is always the most probable source, and therefore, in accordance with the Arabic meaning of the word cypher, which is vacuity, we must search for some material object used in calculation to which the term might refer. The cypher is first described in Latin in 1202 as a recent Asiatic invention in a MSS. work entitled "De Abaco," published to diffuse the new system of arithmetic. The title of this work gives a clue to the original object-meaning of the cypher. Unfortunately the term cypher is now applied to the whole of the numerals. The Abacus was an apparatus well known to the ancients, in one form for counting money, in another for decimal calculations. In a third form it was a table covered with sand; figures were drawn on the sand with a needle. We use the word calculate from the Latin term for the names of the balls or calculi in the Abacus. The invention was really twofold, and in both respects a great advance was made on any previous system of arithmetic, as was distinctly declared in 1202, that it regulated position now as well as contained the cypher. The ancient Romans in reading the results of the Abacus, when a division was empty, used no sign or figure, but only set down the figures for the divisions containing some calculi. Now, I suggest—

1st. The personally unknown authors of this great discovery first gave the name of cypher to the division when it contained no ball. I believe (and state for the first time) the cypher was really only a reference to the fact that 0, a sign standing for emptiness in the division of the Abacus, should record in the

calculation that a division of the Abacus was empty. This involved no theoretical or metaphysical connection of the cypher with any theory of calculation at first. It was a true rendering of facts. The cypher was an idea of object-origin, which was evolved into the metaphysical idea of nothing.

2nd. The Indian arithmeticians settled that the sign or signs for any number under 10 should be only one figure; for any number between 10^1 and 10^2, there should be always two figures; between 10^3 and 10^4, there should be three figures; and so on for each new power of 10. Then a system was arranged substituting ruled lines on paper for the divisions or partitions of the Abacus (probably by the same great inventors of the use of the cypher) by which all the advantages of the use of the Abacus were obtained with only pencil and paper.

The expression "carrier," applied to spur-wheels in mechanics, is curiously parallel with the term carrying a figure in arithmetic, which probably is a survival of the act of carrying the ball from one division to the other in the Abacus. The word token in English was originally applied to figures, as if they stood for some objects. The method used in making arithmetical inventions and the plan of counting with balls should be followed in teaching the art of arithmetic to children, that is, by using objects illustrating the processes, instead of by thrusting the mature abstract arithmetic fit for scholars into the unprepared minds of children. There are modifications of the Chinese swan pan used universally for commerce in Russia, and often in England for teaching. The calculating machine really works sums by objects, just as the savage did by his gesture-language.

In another great and early invention, viz. that of flint implements, the first tools made by man, who has been since described as the tool-making animal, to distinguish him from the lower animals, an object-origin can be traced. I find a possible natural source of the first idea of a cutting and digging tool in the bills of birds. The bill of some birds is as fine as the bone needles of early men. Living on streams, the prehistoric men probably watched birds very closely, because birds were an important article of food. When unaccustomed to man's attacks, birds are easily caught and taken for food. There is no other natural object of the shape of a flint implement or bird's bill. The teeth, horns, and tusks of animals used for purposes of offence are all rounded, not ridged like an implement. The bill of the snipe and some other birds has the form and size of a bone needle.

The ridge so familiar to the flint implements of all countries is clearly represented in the cutting and digging or seizing

apparatus of the bird, and this crest or ridge still survives in the sword, bayonet, ploughshare, and even in the ornamental spear railing copied from the real weapon, and introduced into England in 1816. The invention of flint implements was long before the discovery of metals and the subsequent invention of woven articles of clothing.

Then the earliest bark clothing fabrics of the lake dwellers are clearly associated with or copied from the work of birds in nest-making, if likeness is a test. The weaver-bird enters from below to avoid snakes. Bast, or bark, was a favourite material of clothing with early men. Grass or reed mats and thatch are close imitations of birds' work, and are still articles of furniture. The spindle whorls are much later than the flint implements; they are not found among the remains of the cave men. Observation also shows that the plaited bark period preceded the proper spindle-woven fabric period. The providing a hard cavity for the foot of the spindle to turn in, although the author is unknown, was a most important invention. These whorls are made of bone, wood, slate, pottery, &c., clearly the product of an apparatus made on the plan or copied from the fine drill. That valuable prehistoric drill no doubt preceded the use of the spindle drill used for making whorls perhaps by as great a period as the latter preceded the machine drill of this century so much used in the art at present, and without which modern machinery could not be produced. The stages of this invention were best shown by E. B. Tylor.

It has been erroneously remarked that the fact of ideas being derived from objects shows that the idea arose when man was in a very uncivilised state Nothing, I believe, is more untrue. I find that the great discovery of Babbage (the calculating machine which performed what at first was considered an impossibility) has actually the same operations as the Abacus. The plane in the planing machine was in a similar manner the substitute for the hand-plane or tool used in the human hand. In the same way the objects or lines in the spectrum discovered in the sixteenth century are the base of the new ideas of the constitution of the sun. These lines were long since measured and ascertained by the use of the spectroscope. The loadstone was long since discovered, or, rather, observed, by some unknown person to have the power of attracting iron, and thus the results—magnetism and electricity—are sciences having entirely an object-origin. The properties of steam were deduced by Watt from experiments on Newcomen's and his own engine, not from any experiment on the elasticity of vapour.

The Romans knew the electrical properties of amber, and they knew the action of the electric eel; but the ancients had

never practically realised how motion of heavy bodies could be communicated without touching an object, by a real physical cause, and for want of tangible cases of motion they never connected the revolutions of the heavenly bodies with a physical cause. Gilbert's work was quoted by Bacon, Kepler, and Newton. Gilbert gave the clue to the theory of universal object attraction, or of definite force or attraction, or "drawing to," the words suggested by the magnetic stone with its load or loadstone. Thus the great discovery of gravity had, to some extent, an object-origin, particularly if we admit that the observation of magnetic force led to the discovery of the all-pervading force of gravity. Then, as to other similar cases, the scale of Nilometer, with the height in the time of Ptolemy shows how early object-scales were introduced as measures. Figures of men and women, gods and godesses, in Egypt or Greece, were drawn out on a scale of squares. Vitruvius gives the dimensions of every part of the body in terms of the other parts for their scales.

Then we find the following standards for measure, viz. the finger, the nail, the palm, the hand, the cubit, the foot, the step, the pace, the distance walked in an hour, the distance of two fixed points in the original stadium or building, from which other stadia were derived. Even in Domesday Book the quantity of the land is compared, not by its actual size, but by the objects it produces.

These are all proofs of the words relating to measures having an object-origin. There are similar proofs as to the measures of capacity and of the division of time being derived from measured objects, and not from any ideal source. The period of the earth revolving round the sun fixed the year, that of the earth on its own axis the day. The time or revolution of the moon round the earth fixed the length of the moon or month.

That there were twelve months in a year was also found by observation. The half and quarter month, the fortnight and week, were derived by division from the month itself, as is seen by the hieroglyphics. The period of seven days was a natural division or quarter of a month, and not formed by Sabbatarians, as we find it in Egyptian antiquities. I have the hieroglyph of Ptolemy here for the division of time. The second is represented by an eye winking, the year by the three periods of youth.

The old successive divisions of seven days were by the Akadians or Chaldæans, after the seven principal planets. These are all cases where the ideas have a distinct object-origin. I have remarked that Egyptians commenced each year with the day of the astronomical year the star Sirius rose with the sun, and in our own country similar ideas were worked out in a

different manner. The builders of Stonehenge fixed a gnomon or pointer-stone of the rude form of the trunk of a man in such a position that the sun rose exactly over it on the longest day of the year, and the orb formed the head of the man for a minute or two.

If we had not the Egyptian remains we should know little about the gradual evolution of our present arts and manufactures, and if we had not the cave- and drift-remains we should know little about the beginning of civilisation. Neither drawings nor buildings were probably made for luxury or amusement by early men. Their work had generally a religious or utilitarian object. There are no remains of palaces in religious Egypt, for the wealth acquired by trade was chiefly spent on the temple, not on palaces, or even dwelling-houses or places of amusement. There are birds which make collections of shells and urns for amusement. The savage drew on bone or ivory the animals he hunted, but never copied his own race or his own habitation. The Egyptian Ptolemaic hieroglyphics of the divisions of time give the sign for the minute or second an eye-wink.

Good clocks must have been early in existence in Chaldæa, perhaps in form like the excellent water-clock of the Greeks, so exact were the observations, even to minutes and seconds. Probably the first astronomical clockmaker living among the Akadians divided the day into twelve hours, from the analogy of the twelve months in the year, and the hour into sixty minutes, making an arbitrary division, or by the analogy of the period of the number of days in two months. These plans have been followed ever since, although any other system would have done as well, and this division into hours, minutes, and seconds is universal. Once started, a scale, bad or good, is very likely to continue—a law to which we owe many inconvenient divisions of measures and weights.

The width of the particular rails on which the first locomotive was run or tried by Stephenson was 4 feet 8 inches. This curious, odd figure determined the width of all the rails on the Manchester and Liverpool Railway, and afterwards in all England and in some other countries. There is no exception in any country now to the division of the Equator into 360 degrees. There are few rules without any exception. I have found one even to the almost universal rule that *u* follows *q*, that is, it is omitted in the word cinq. It seems to show that the human mind, once started upon a track, useless or useful, will continue on it. Why should not *q* have the sound of *qu*, and save the useless printing and writing of this letter *u* over a large part of the world?

The useless tracks followed for thousands of years are illustrated by the cycle of fifty-two periods, consisting of four suits of thirteen each. The four suits were originally marked by the names of four planets—Reed, Rabbit, Flint, and House—in Mexico, and this plan probably proceeded out of the number of the weeks in a year, being fifty-two, and that again gave rise to the figures on cards, which were probably first invented for astrological purposes (see E. B. Tylor).

The Etruscan alphabet, so long a puzzle, has been deciphered by Isaac Taylor by the general law of the change of digital into decadal numbers common to so many languages (see Hervas, Peacock, Pott, &c.). Terms of a standard continue, although the meaning has entirely varied.

The grain was a measure of the smallest length, now it is transferred to one of the smallest weight. Standards of weight, as we see by the case of Nineveh, were not multiples of each other. That rule was a late discovery. The recent object-origin of the metre settled by act of a legislature, takes a fixed part of the diameter of the earth, is an interesting return to an object-measure, just when another Parliament had fixed a special standard by comparison of old standards.

The keel meant originally a small lighter, now it is a weight of 21 tons. A ship load is certainly not a very definite quantity. In both Mexico and Morocco, grants were lately given for ships to come in duty free, without ever specifying the size of the ship. Of course the largest ship possible was sent in. There has been a gradual progress to more exactness in measurement, and all gauges for mechanical production, but there is still room for improvement. The divisions of screw threads, prepared by Clement for Babbage, when constructing the calculating machine, were furnished by Clement to Whitworth, and are known as Whitworth threads all over the world. The world has not yet agreed how to measure a ship. A commission on this subject was lately held.

Many other useful inventions had an object-origin: thus I presume the tree falling in the forest accidentally on another trunk, making a natural balance, no doubt gave the first idea of the balance so common in Egyptian drawings. This instrument, we know, was one of the first and most important mechanical inventions. It gave a mechanical interpretation of justice, and was often drawn in Egypt, the position of the scales being always the test of a good life.

The balance is the foundation of modern chemistry, for by it are determined the dimensions and relations of weight and measure, and of the composition of bodies.

The Greeks made two crowns of equal weight, but of different

metals, and immersed them in water, thus establishing the law of specific gravity. This important discovery had a well-known history, but its object-origin could have been safely inferred.

Again, the wind would be observed to blow flame very unevenly by the earliest discoverers of fire. The effect of wind thus acting on fire no doubt suggested the early use of an artificial blast through a reed, or a goat-skin bellows, to get a more intense flame. The invention of the blow-pipe bellows led to the invention of the art of metallurgy, and preceded that of commerce, which it powerfully influenced. The metals at the earliest period, as now, regulated exchanges.

The reed was the first blow-pipe used, and charcoal and lime were also the first smelting materials used in the first metallurgical operations, and continued still to turn ore into metal—so we have another instance of the great ability and perseverance of the inventions of those whom we call savages. The date of this invention must have preceded the earliest Egyptian temple certainly many thousand years. As the present or modern iron blast-furnace has also a gigantic blow-pipe, and coal often replaces charcoal, therefore modern metallurgy is as much a continuation of the old plans of prehistoric men as the modern calculating machine is a continuation of the ancient Abacus. Identical plans of manufacture of weapons, and of metallurgy, are now used throughout the world, just as the shapes of flint implements were universal in former ages. The manner in which an useful invention spreads was nearly as complete in prehistoric times as at present.

The dream of an universal language has been realised as far as numerals and arithmetical figures are concerned, without any international agreements. All the world uses the Indo-Arabic figures, cyphers, and Napier's Logarithms; only the Roman letters are now employed for inscriptions, or to mark the number of plates in books. When the Abacus was used, the Roman capitals answered the purpose well enough, because it was only necessary to record results in the Roman figures, but not so in paper calculations where addition was necessary. The fact that the forms of numerals have lasted unchanged nearly 3,000 years shows an inherent vitality of form. It appears as if the Roman digital numerals are all straight lines, because the Romans counted by means of pegs placed in the ground. I infer this because up to X, Roman numerals appear to be drawings, or copies of wood tallies or pegs. We have a survival of these original wood-billets in the Exchequer tallies till lately used in this country, and also probably in the wickets in use in the game of cricket. The C and M for hundred and thousand

are comparatively modern additions. The C was the band or with in Egypt. The Asiatic characters were, on the contrary, all curved, and had forms fit to be drawn in sand, not represented on wood. Sand was the material, we know, used by the early Geometers to explain their problems in the Abacus, and which was used for many other purposes unknown to us or Egypt. Thus the tombs of the Bulls in Egypt were filled with sand before the sarcophagi were lowered down into them by taking out the sand by handfulls (Robert Stephenson).

I believe savage men may have divided their booty and possessions very accurately by object-divisions, before they had any names for numerals. Equality and quantitative differences are observable without apparatus. In the same way the Greeks knew the principal proportions of geometrical forms by actual measurement long before they invented the art of reasoning on paper about straight lines, curves, squares, and circles. We may be sure that any great propositions, like the measuring the height of a building by its shadow, was first known experimentally by measurement of an actual shadow in the Abacus, which instrument may have been often of large dimensions, fixed in the centre of the theatre of the schools. The black board is its lineal descendant, but the vertical position has displaced the horizontal, and the modern chalk the ancient needle and sand. We may infer that the first geometrical demonstrations were by actual measurement of areas, lines, and angles. One instance of this survives in the demonstration of the fourth problem of the first book of Euclid, where application of one triangle to another is the test of equality.

The result of the 47th proposition of the first book of Euclid was probably well known by actual measurement of the squares on the triangle in the Abacus. In the drawing of a man using his Abacus in mediæval times, he is represented with the compass in his hand measuring. Nothing could be easier than the actual proof by measurement of this proposition, when once the idea of equality was suggested. The reason the Greek Geometers applauded the demonstration of the 47th proposition so much, I take it, was not for the utility of the discovery of the equality of two squares to one, which was probably well known before, but for the intellectual beauty of the geometrical or mathematical demonstration, the truth of which could be checked and found to be true by actual measurement. Not only had this great geometrical problem, the 47th of the first book of Euclid, an object-origin, but the works of great writers of all ages are filled with description and similes of natural objects. We have especially our school of Lake Poets devoted to the art of making poetry and nature coincide.

All the great discoveries of modern science are founded on object-teaching or experiment, so that the greatest ideas in science, art, and philosophy have an object-origin. Thus Franklin compared the optical qualities observed of electrical sparks and lightning, and on trial found they acted alike in the Leyden jar. The great Newton never trusted to reasoning that he could not support by diagrams or by an experiment. We may therefore consider, from the numerous examples I have given, that thoughts based upon realities, or in fact that the thoughts which I think may properly be termed basal or trunk thoughts, have an object-origin and yet are of the highest value, and that the quality of the mental work of early man is as good as our own. As science advances, ideas of object-origin or object-proof, will be more and more valued, to the exclusion of the more fanciful analytical ideas which do not depend on observation, and now, as in the middle ages, set men on false philosophies. The truth is only appreciated when it is shown to be the truth by an independent proof. Arithmetic and geometry have therefore the highest place, because they prove each other. In Florence, of the seven sciences depicted, arithmetic held the first place on the Gheberter column.

I trust I have established the probability of some of the earliest ideas and inventions having a strictly object-origin. Some of these have survived to the present day, and have been of the greatest utility to man, and helped his civilisation. They have been re-named, and appeared again in combination as secondary thoughts. Many of the greatest masters of modern thought have used similes of object-origin for their most important passages. The same views applied to the development of thought might be applied to the theory and the development of species. No individual or species can change without some definite object-cause, near or remote, transmitted or duly received from some physical object. An old writer said, forms of beauty lie hid in marble; it required the sculptor to render them visible. Thoughts of beauty or utility, we may say, lie hid in nature; it requires the human mind to render them perceptible. The thoughts of animals may, like ours, frequently have an object-origin, but animals seem to have a difficulty to produce new ideas.

Discussion.

The President said he did not clearly understand from the paper how the 0 came to represent the empty calculating machine, unless it had already been recognised as the figure indicating zero, or unless the calculating machine was itself of a circular form. Otherwise a square or triangle, or any other geometrical figure might equally be taken to represent emptiness. He thought there

were many suggestive points in the paper, but he could not quite concur in thinking that the forms of flint implements were likely to have been copied from the beaks of birds, although, doubtless, such natural objects may have been utilised by the earliest men, as we know they are by existing savages, for any purposes for which they are found suitable. Taking a broad view of the subject, he thought that the imitation or utilisation of natural forms by man bore exactly the same relationship to the arts that onomatopœia did to language. Philologists had shown that language did not certainly originate exclusively in the imitation of natural sounds, although onomatopœia had served to enrich it from time to time in the process of its development; so also the origin of the arts was not based solely on imitation, but grew up gradually through necessity, and natural forms were utilised or imitated from time to time as their uses came to be understood. The faculty of imitation was, no doubt one of the most marked characteristics of primeval man, but it was not his only faculty, nor could it in itself suffice for the progress that has taken place.

Mr. Lewis said that it was not merely at Stonehenge but at most of the British circles that a reference, by outlying stones or otherwise, was made to the north-east. He had given many details concerning this matter in various papers read by him in that room and elsewhere, and could, therefore, only say on that occasion that he connected it with solar worship. Mr. Tylor's paper was, as he understood, written to show that numerals and measures were derived simply from material objects, but he could not see what else they could be derived from; it was impossible to evolve either a metre or a two-foot rule from the moral consciousness, and the fact stated by Mr. Tylor, that modern nations had sought for a material standard, showed this to be the case. In all ages the object had been to select as the standard of weight and measure some object or objects which should be as nearly as possible everlasting, invariable, and readily accessible. Amongst such objects the average grain of barley had been selected by some nations, and figured in our own tables.

Mr. Distant said: There is considerable danger in ascribing man's early inventions to the observation of natural objects, as has been done in this interesting paper, by supposing that flints of human workmanship were formed on an idea received from the beaks of birds. On this principle nothing would be easier than from the annals of zoology to obtain facts that would account for the birth of almost all those discoveries by which man gradually acquired the advantage in the struggle for existence. Allusion has been made to the wind blowing through a reed having perhaps been the cause of the use of the blow-pipe. But facts could be thus brought to bear on the same phenomena having originated the manufacture of musical instruments; for Dr. Schweinfurth tells us that when travelling in the heart of Africa he found in the acacia groves that the shoots were often distorted in form and swollen at the base with globular bladders, through the agency of

the larvæ of insects which had worked their way inside them. When the insect has escaped, the shoot acts the part of a musical instrument, the wind producing from it the sound of a flute. Pushing the principle still further we might imagine our ideas of government to have come from observing the social economy of ants and bees, or that the "Physalia" gave to man the art of construction of the canoe.

Mr. Brabrook remarked that in the somewhat advanced stage of civilisation to which the invention of numerals belonged, he believed far more importance must be attached to considerations of utility than to the imitation of natural objects. No doubt for every operation that involves mere counting, the fingers of the hands present themselves as the most obvious instruments for the purpose, hence the almost universal adoption of a decimal system of numeration; but when division or weighing is required, then a duodecimal system becomes necessary, and is everywhere adopted. This led him to remark, incidentally, the extreme fallacy of the advocates of a decimal coinage and of the decimal system in weights and measures, who would endeavour to apply to matters in which every variety of division and subdivision has to be provided for a system that is incompetent to express the idea of division by three, otherwise than by an endless series of divisions into three-tenths plus three-tenths of tenths plus three-tenths of tenths of tenths, and so on *ad infinitum*.

Mr. Moggridge, Mr. Smee, and others, took part in the discussion, and Mr. Tylor replied.

The following paper was read by the author:—

Some Apparent Coincidences *of* Custom *and* Belief *among the* Ancient Chaldeans *and the* Peoples *of* Western Europe. By A. L. Lewis, M.A.I.

Perhaps there is no professedly Anthropological society which is doing more real anthropological work than the Society of Biblical Archæology. Whatever and wherever the origin of the human race may have been, it is to Chaldea and to Egypt that the origin of the civilisation of Western Europe must, for the present, at least, be traced, and it is to the records of those countries, so wonderfully concealed during ages of indifference, if not of barbarism, so wonderfully brought to light within the last few years, and so wonderfully translated for us by those scholars (amongst others) who take the leading part in the Society of Biblical Archæology, that the anthropologist must look for the elucidation of old problems, and it may be for the bases of new ones. There are but few who can translate a cuneiform inscription reliably and satisfactorily, but, when the inscriptions are translated, it becomes alike the privilege and the duty of students of other branches of science to study the

translations, and to assimilate such parts of them as bear upon the facts which they have already collected from other sources. It is in this manner, therefore, and not because of any original discoveries or even researches of my own, that I venture to bring before you the following notes and queries.

Some of the clay tablets which took the place of our paper and parchment deeds, and which stated the terms upon which land was sold, and the interest and conditions upon which loans were granted, bear the marks of finger-nails in place of seals. Is it possible that the custom which prevails amongst us at the present day of touching the seal of a deed with the finger on signing it is in any way a survival of the Assyrian custom of marking the moist clay tablet with the finger-nails of the contracting parties before baking it?

The Assyrian months were lunar months, and the days on which the quarters began were to a certain extent treated as sabbaths. The half-month was divided into three periods of five days each, called respectively after Anu, the god of heaven, Héa, the god of the sea, and Bel, the god of the earth, probably on account of the moon being at those times in the particular part of the heavens dedicated to the god named. This division of the heavens between the gods may be compared with the arrangement of the altars of the state religion at Pekin, where it is stated that an altar of heaven is situated on the south side of the city, an altar of the earth on the north side, an altar of the sun on the east side, and an altar of the moon on the west side; and this again brings to mind a monument on which Nechtharhebes, a king of Egypt of the 30th dynasty, is represented as offering a libation to the deities of the four cardinal points or quarters of his country, the names of those deities and the cities in which they were venerated being inscribed on the monument in hieroglyphics.

The Babylonian measures of length, and also the Jewish, seem to have been based upon the barleycorn. It is well known to most school children that three barleycorns make one English inch. Mr. Conder considers our measures to be compounded from the Babylonian and Roman.

The Babylonians had in their temples towers, on the summit of which were altars. Is it possible that the Irish round towers, the object of which has been so much disputed, were analogous to these?

Sun-worship and the burning of children were common to Babylonia, Palestine, and Phœnicia, and were borrowed from the Accadians, as were most other beliefs, practices, arts, and sciences of the period. Sun-worship and the passing of children through or over a fire were also in vogue among the Celts of

our own country, the latter custom in particular having survived to a very recent date, if not even to the present day.

A number of writers have shown us that the true origin of many so-called Christian emblems, vestments, rites, practices, and even doctrines, for which no foundation can be found in the New Testament, may be traced to the various systems of paganism, and particularly to that of Assyria, and it would not be surprising if among these were found some things that have gathered round the simple memorial of bread and wine instituted in the upper chamber at Jerusalem. The Assyrians had a mysterious object called in the Semitic tablets "mamit," and in the Accadian "nambaru" and "sakba," the exact nature of which is at present unknown, although some of its characteristics may be gathered from various allusions to it in the inscriptions. Thus the following lines show that the "mamit" was regarded as having a heavenly origin, if not as being itself a deity:—

> "Salvation, from the midst of the heavenly abyss descended,
> Mamitu, from the midst of heaven descended."

And again,

> "Mamit, Mamit, treasure which passeth not away,
> Treasure of the Gods which departeth not,
> Treasure of heaven and earth which shall not be removed,
> The one god who never fails,
> God and man are unable to explain it."

While another hymn is devoted to impressing upon the worshippers the duty of saving the "mamit" before all other things in case of a temple taking fire.

From the following lines we gather that the "mamit" was a small object, and was taken to the dying with the view of purging them from their sins:—"Take a white cloth, in it place the mamit in the sick man's right hand, and take a black cloth, wrap it round his left hand, then all the evil spirits (naming them), and the sins which he has committed, shall quit their hold of him, and shall never return."

Again, we hear that Cara-Indas, King of Carduniyas and Assur-bil-nisi-su, King of Assyria, made a covenant and a "mamitu," which is translated pledge, thus reminding us of the derivation of our own word sacrament, from *sacramentum*, an oath, and of the frequency with which the sacrament was used to swear by in the middle ages.

The Assyrians believed in the immortality of the soul. The souls of the righteous rose, as they imagined, like a bird to the skies, and the sun, "greatest of the gods," received them into happiness. The following line—"May the sun, greatest of the Gods, receive the saved soul into his holy hands"—sounds very

like an utterance from an orthodox Protestant pulpit of the present day. The great name of the sun in Assyrian theology was "Dian-nisi," which means "the judge of men," and is identified by Mr. Talbot with the Dionysus of the Greeks.

While, however, the souls of the righteous ascended to the sun, the souls of the unrighteous descended, according to the Assyrians, to "Bit Edie," "the house of eternity;" "Bit sha eribu's," "the house of darkness;" from which terms, "edie" and "erib," Mr. Talbot derives the Greek "hades," and "erebus." "Erib" strictly means to enter, but gets a secondary meaning of darkness from the sun entering or setting in the western sea. This derivation reminds us of the statement of the Rev. E. Davies, in his "Celtic Researches," that "Annwn," the country of the dead was, according to the Kymry, situated in a lower region, in the going down of the sun in the west, and that Hercules and others are said to have gone to the west to consult the manes of the dead; while the Celtic word "Annwn," reminds us again of the "Annunaki" of the Assyrians, the offspring of Anu, the sky, or the God of heaven; these "Annunaki" had their seat in the lower world, and may be compared with the "Cwm Annwn," or children of Annwn, a kind of spirit believed in by the old Kymry of Britain.

Amongst the gods named in the Assyrian tablets, is one called Héa, of whom Mr. Talbot says his name might, perhaps, better be translated, Hu or Ho; he was the god of the sea, and of all clever inventions and mysteries, and it has occurred to me that he may be substantially the same as the Hu Gadarn, or Hugh the Mighty, of the Kymry, who, according to their triads, led them from the shores of the Euxine to Britain; it may be that, as they followed the sea-coast for the most part, they considered Héa, as god of the sea, their leader. Mr. Croggan, who by the aid of the Celtic languages has produced the first satisfactory translation of the Lycian inscriptions, identifies the Lycian deity, "the great Hu," "the high ruler of the heavens," with the aforesaid Hu Gadarn, and thus supports my view.

At first sight it may seem rather a long step from the Assyrians to the Kymry, but the line of connection is not so difficult to trace as might be supposed, even if we ignore the possible connection, supported by Mr. Croggan, between the Lycians, the Trojans, and the Kymry. Mr. Smith, in his "Chaldean Account of the Deluge," says, "the oldest traditions of the early Babylonians seem to centre round the Persian Gulf," and, says Mr. Sayce, "it seems more and more clear that the original home of the Semites lay in the Arabian Desert, stretching from the Persian Gulf to the Red Sea," but this is precisely the quarter from which, according to Herodotus and other writers,

the Phœnicians originally came; moreover, the difference between the Assyrian, Phœnician, and Hebrew languages, seems to have been, if anything, less than that between German, Dutch, and English, while a multiplicity of ties of custom and religion connected those peoples together,* and there seems every reason to believe that the Phœnicians, and through them the Europeans, derived more from Chaldea, and it may be less from Egypt, than is generally supposed. From the Phœnicians to the Kymry is not a very wide leap; that the Phœnicians or Carthaginians had, at a very early date, commercial relations with, and considerable influence upon, the inhabitants of these islands can hardly be doubted; and, whether by their means or otherwise, it is certain that many identical superstitions, beliefs, and practices, have spread along a line extending from these islands to the Mediterranean, Southern Asia, and Hindostan.

Perhaps, however, one of the most remarkable facts that have been discovered in connection with ancient Babylonia and Assyria, is the fact that nearly all their civilisation originated with a Turanian race, and was only borrowed and diffused abroad by the less cultivated Semites, who overran their territory, intermingled with them, and succeeded them in empire, just as the civilisation of the barbarous Teutons of Europe has been derived from the Latin and Celtic nations, whom they in some measure supplanted, but who inherited, preserved, and improved the civilisation of the East. Can it be that our science has a great surprise in store for us, and that we shall ultimately find out that all civilisation originated with the somewhat despised Turanian peoples?

Discussion.

Mr. Moncure Conway said that the questions suggested by the paper were of a vast character. The great problem in the region of Assyrian mythology seemed to be the right distribution of the ideas and myths found there to right ethnical sources. The races, and consequently the religions, of antiquity seemed to have been rolled together then to such an extent that we often find things that puzzle us as to whether they are Chaldæan or Persian or Indian. The survival, for instance, in Europe of a belief in some evil influence of moonlight nights carries us back to Hur (the Moon), third person of the Assyrian trinity, but the association of destructiveness with it must be traced to Siva, as, indeed, must the awfulness usually ascribed to such third persons, and the fatality of sins against them.

* One of these customs, cited by Mr. Talbot, will be familiar to all. The practice of cutting the flesh, used by the prophets of Baal in their contest with Elijah, is specially commended in one of the tablets, if used in honour of Ishtar, the Ashtaroth of the Philistines.

Mr. PARK HARRISON said: Whilst fully admitting the very great progress that had been made in deciphering cuneiform writing, he was merely repeating an objection that had been more than once made by eminent Assyriologists, when he said that it was too much the practice of translators to *guess* at the meaning of words. When theological terms were used, supposed equivalents were often adopted from the religious phraseology of the day.

After some remarks from Mr. TYLOR,

Mr. LEWIS said, in reply to Mr. Park Harrison, that he did not think that he had in his paper treated any doubtful terms as being established. He was glad to find himself supported in general by Mr. Moncure Conway.

The President announced that Lieut. Cameron, C.B., R.N., would, on a future occasion, read a paper on the Anthropology of Central Africa; and the meeting separated.]

MAY 9TH, 1876.

Colonel A. LANE FOX, *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and the thanks of the meeting were voted for the same, viz.:—

FOR THE LIBRARY.

From Prof. F. V. HAYDEN.—Bulletin of the United States Geological and Geographical Survey of Territories. Vol. II. No. 2.
From the EDITOR.—Materiaux pour l'Histoire de l'Homme. April, 1876.
From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XX. No. 85.
From the AUTHOR.—The Works and Problems of the Victoria Cave Explorations. By R. H. Tiddeman, M.A.
From the EDITOR.—Revue Scientifique. Nos. 44 & 45, 1876.
From the SOCIETY.—Proceedings of the Royal Society. Vol. XXIV. No. 168.
From the SOCIETY.—Proceedings of the Royal Society of Tasmania, 1874.
From the AUTHOR.—The Mystery of the Serpent. By Rev. Henry Stretton, M.A.
From the INSTITUTE.—The Canadian Journal. Vol. XV. No. 1.
From the ACADEMY OF SCIENCES, Krakowie.—Rozprawy Wydzialu Przyrod Niezego. Tom II. Kolberg Lud, No. 9
From the EDITOR.—Nature (to date).

Mr. HYDE CLARKE read the following paper :—

On PREHISTORIC NAMES *of* WEAPONS. By HYDE CLARKE, M.A.I.

THE extraordinary way in which weapons are distributed among the ancient and modern races of the world caused me to suggest the desirability of an inquiry into the relations of the names, and to publish a note on the connection of a name for arrow between India and Africa. No one has yet followed up the subject, for which the materials are scarce, and have to be collected from works not readily accessible. As an encouragement to research, the following examples are now offered of some names of cutting weapons. Those selected are arrow, or dart, knife, sword, axe, or hatchet, and spear, or lance. Hoe, it is interesting to observe, is allied to axe, just as a celt is employed for both purposes. All these are allied as a group.

Root, BK.

ASIA, &c.		AFRICA.		N. & S. AMERICA.	
Arrow—					
Gyarung	kipi.	Houssa	kebia.	Itenes (S.)	kivo.
Khari Naga	takaba.	Goali	kawi.	Alaska (N.)	kio.
Mru, or Toung of Burmah	qwai.			Cabecar (C.)	ukawo.
				Darien (C.)	cheekwa.
				Bribri (C.)	kabut
Knife—					
		Houssa	takobi.	Skwali (N.)	khaw.
		Fulah	kafahi.	Watlala	ughkhan.
		Wolof	paka.	Chinook	khawckhe
		Fulup	gewa.	Pujuni	kiai.
				Queensland (Austr.)	kuburra.
Sword—					
		Houssa	takobi.		
		Fulah	kafahi.		
		Nufi	chukwo		
		Anan	akowo		
		Gobaru	takobahe		
		Boko	takuwo		
		Gajaga	kafa.		
Spear—					
		Batta	kubi.	S. Australia	kyah.
		Filham	kabai.	Crow (N.Am.)	kaabe.
		Nki	kebie.		

A curious point is in the parallel forms.

Spear—			
India	kipi.	Houssa	kebia.
	takaba.		takobi.

Root, BN.

Arrow—					
Burmese	pen.	Mandingo	benyo.	Miami (N.)	wepema
Malay	pana.	Bambarra	bien.		
Javanese	pana.	Ashanteo	eben.		
Sanskrit	banah.	Kanyop	punon		

Knife—

Khond penju.
Telugu banamu.

Kiriman mbene.

Sword—

Kra pano.

Polynesia (bow) panna

Spear—

Mandingo benyo.
Curma gbani.

Root, DM.

Arrow.
Sontali jhampa.
Thaksya tume
Tamil ambu.

Spear.
Mandingo tambu.
Bambarra tama.

Axe.
Landoma tamun.

Sword.
Houssa tamagas.
Ekamtulufu ntame, ntome.

Arrow.
Keracares tomete.

Root, KN.

Arrow.
Tharu khando.
Madi kani.

Chentsu kondu.

Tamil kanei.
Chinese chien
Tibet chen

[Greek kontos.]

Arrow.
Fanti egandua
Tene, &c. kuni.

Ashantee egiane.

Axe.
Bornu kaniri.
Fulup, &c. kuneb.
Gbandi kuno, kona

Sword.
Ekamtulufu nekono
„ ekon.

Bow.
Ashantee egan.

Spear.
Mose kande.

Wun kanyake.

Arrow.
Australia kinnee.
„ koön.

Axe.
„ gana.

Arrow.
Cayuga (N.) kanoh.
Tuscarora (N) kanah.
Cherokee (N.) gahnee.

Carib (S.) kengye.

Axe.
Dakota (N) ahana.
Miami (N.) lawkawkanah.

Knife.
Cayuga (N.) kainana.

Axe.
Darien (C.) akana.

Root, KM.

Spear.
Ashantee kami.

Axe.
„ ekuma.

Sword.
Boritsu giman.

Arrow.
[Australia] kaama.
Carib (S.) chimari.

Axe.
Piskakoa (N.) mikhamun

Bow.
Bribri (C.) shkumne.

Root, KL.

Bow.
Mandingo kallo.

Knife.
Muntu mukalu.

Spear.
Jclana kala.

Boomerang.
[Austr. (Victoria) kallum-, kallum.

Root, SK.

Knife.
Arab sakin.

Knife.
Houssa aska.

Axe.
Ashanti sukare

Axe.
Blackfoot (N.) koksakin.

Knife.
Tiribi (C.) sogro.

Shield.
Bribri (C.) sogur.
Cabecar (C.) sogru.

Root, KS.

Arrow.
[Basque guezi.

Axe.
Mbarike gesum.

Sword.
Tene kese.

Spear.
Opanda kasa.

Arrow.
Brunka (C.) tunkasa.

Root, SN.

Arrow.
Naga san.
Siam tsao.

Chinese tsien.

Gadaba sonai.
Naga lassang.

Knife.
Circassian soonee.

Arrow.
Sarar insan.
Lubalo, &c. musongo.

Knife.
Bornu dsena, dsana.

Sword.
Batta songai.
Kisama isango.

Ham dsangara.
Bulunda soni.

Spear.
Basa esanu.
Boko suna

Axe.
Pika dsonto.
Musentandu sengele.
Nyamban ntsanga.

Knife.
Dahcotah (N.) eesamg.

Root, SR.

Arrow.
Koko sar.

Georgian sari.

Sanskrit sara.

Arrow.
Bulum sor.

Sword.
Mose, &c. sore.

Knife.
Mose sora.
Legba sera.
Bambarra sirifey.

Spear.
Pajade sori.

Arrow.
Tiribi (C.) suri.

Knife.
Shasti (N.) atsirai.

Root, SM.

Arrow.
Arab sahm

Mongolian somon

Brahui sum

Axe.
Wolof seminye

Sling.
Ashantee same.

Sword.
Ife dsoma.

Axe.
Songo odsimpu.
Salum dsambere.

Axe.
Natches (N.) chyamino.

Arrow.
Carib (S.) sumara.

Moxos (S.) chimniye.

Root, BL.

Arrow.
Naga pela.
Garo bala.

Siam pla.

Niksbar bol

[Latin pilum.]
[German pfeil.]

Arrow.
Nki bole.
Kisi belendor.

Knife.
Kabenda bele.

Sword.
Houssa yambol.

Spear.
Coptic gebel.
Mampo bal.

Arrow.
Carib (S.) pulewo.

Throwing-stick.
[S. Australia nyarimbal.

Spear.
[N. S. W. bilarr.

Root, BR.

Arrow.
India bara

Laos lempur.

Arrow.
Basa puro.

Spear.
Landoro mboro.
„ gbara.
Musu pere.
Pulo laboru.

Axe.
Legba agbare.

Axe.
Fulah gembiri.
Baga abera.
Kisikisi berai.

Sword.
Ebo baruke.

Knife.
Gbandi mbura.
Toma, &c. boro, bora

Arrow.
Carib (S.) parau.

Knife.
Cabecar (C.) taberi.

Bow.
Moxos (S.) parami.
Itenes (S.) pari.

Club.
[N. S. W. beira.

Root, DR.

Arrow.
Dhimal tir.
Gondi tir.

Arrow.
Ashantee adere.
Anfue aturo.

Knife.
Mandingo terang.

Murundo direndi.

Axe.
Biafada dira.
Yula doro.

Sword.
Soso deremai.
Landoro daruma.

Bow.
Natchez (N.) teeragish.
Pawnee (N.) „

Spear.
[Austral. darah.

Axe.
[„ Vict. tharinga.
[„ „ thurang.
[„ Queens-land durree.

Root, KB.

Boomerang.
Kuli, Guzerat keturia.

Arrow.
Tharu khando.
Chentsu kandu.
[Greek kontos.]
[Latin sagitta.]

Sling.
Mandingo kutokato.

Arrow.
Filham katan.
Fanti egandua.

Sword.
Bini, &c. agada.

Boomerang.
[Austr. Victoria } katum-katum.

Axe.
Honduras (C) keedak

Root, SB.

Arrow.
[Nepaul sobi.
Sword.
[Greek xiphos.
Shield.
[Greek aspis.

Knife.
Ashantee sippo.
Coptic sebe.
Sword.
„ zibune.
Knife.
Igu odsufo.
Sword.
Songo sibata.
Axe.
Toma sefa.

Knife.
Catawba (N.) sipah.
Sword.
Blackfoot (N.) sapapistaeis.

Root, KR.

Arrow.
Dhimal khar.
Axe.
[Basque haizcora.

Arrow.
Fulah kurral.
Pulo, &c. kure.
Axe.
Houssa kerada.
Spear.
Jelanas kar.
Krebo gheradr.
Tene geresos.
Egba, &c. ogokure.
Sword.
Wolof karre
Anfue kerante.
Knife.
Ebo ogari.
Biafada kerani.
Ekamtulufu ekore.

Throwing-stick.
[Australia korree.
Axe.
[„ korrie.
Club.
Bribri (C.) kiru.
Arrow.
Carib (S.) werakure.
Moxos (S.) chere.

Root, MR.

Arrow.
Gondi murre.
Kolami murre.
Burman mra.

Arrow.
Meto muro.
Bola omeri.
Kandin amur.
Legba nyimere.
Knife.
Bambarra muri.
Mandingo, &c. muru, muro, mere.
Spear.
Coptic mereh, merh.
Sword.
Nala moreh.

Spear.
[Australia, Queensland mura.

Root, MN.

Knife.
Bayon menye.
Okam imana.

Sword.
Momenya menyi.

Knife.
Yankton (N.) meena.
Alaska (N.) mina.
Spear.
Omaha (N.) mandehi.
Knife.
Brunka (C.) munkru.

Root, DL.

Arrow.		*Axe.*		*Axe.*	
Naga	tel.	Vei	tiele.	Victoria	toola.
Dart.				*Spear.*	
[Latin	tel-um.	Houssa	gatali.	N.S. Wales	tulu.

Further investigation will give us a mass of information, and enable us to throw more light on the comparative chronology of weapons. It becomes possible to ascertain what names are ancient by the study of their distribution. When we find allied names in Asia, Africa, Australia, and the Americas, we know this distribution must have taken place at a most remote and early epoch. Thus distribution in space becomes a measure of time, because ages are required to produce such results. There is some relationship in Africa between the tongue and darting weapons. The following words may belong to this class:—

Degen (Germ.) sword.	Tongue.
Gladius.	Glotta, Glossa.
Lancea.	Lingua.

It might have been thought that spear, dart, and arrow may have taken their names from the snake, but it appears to be from the darting of the fish in the water. This similarity is found in Africa and India. Shield and shoulder, which have a likeness in English, have a prehistoric alliance. It will be observed that the facts apply to Asia, Europe, Africa, Australia, and the Americas, and they are supported by equivalent similarity in other objects of culture, besides tools and weapons.

The following are examples of axe and stone in the same language in Africa:—

	Axe.	Stone.
Boritsu	giso	giso.
Pika	——	guso.
Mimboma	tadi	tadi.
Nyombe	tadi	ditadi.
Gajaga	yide	gide.
Bulanda	fulahu	fulagu.
Kasm	doro	kandoro.
Kiriman	bero	fero.
Aleje	deka	oka.
Mandingo, &c.	tegeran	kuru.
Kono	yende	sine.
Basa	jue	so.
Kum	jan	ten.
Tene	wori-segesi	wure-kobi.

In Gbandi axe is kuno, and stone is koni in Gbese. In the Egba districts the word for stone is ekuta; this is divided for axe into ake and edu.

The word for knife, as might be expected, follows the same law as axe, and shows conformity with stone.

	Knife.	Stone.	
Boko	fure	gbere	B
Landoro, &c	mboru		
Timbuktu	huri	hairi	T
Isoama	uma takuma	nkuma	I
Mbarike	gesum	giso	Boritsu
Bagba, &c.	menyi	manyu	Kabenda
Kanyika	kel	kele	Mbamba

In the Mandingo dialects the word for stone being kuru, it is differenced for knife as muro.

What is understood as Grimm's Law does not necessarily imply vocal degeneracy, as is supposed, because the permutation of the sounds or letters was in prehistoric times used for differentiation (see Tylor, and my "Prehistoric Comparative Philology"). It is possible, and even probable, that as different meanings were differentiated, so the differential words were distributed among tribes, and have been propagated without any reference to Grimm's Law.

In Songo the word for stone is bitamba, and that for axe simpu, a differentiation, but the word for hoe is bitamba. The cause of this relationship between the naming of stone and of tools and weapons is not to be sought far. In our times stone has rather a relation to building, but not so with people who lived in caves and trees. The flint and obsidian chiefly attracted their attention for knives, axes, hatchets, swords, spears, arrows, hoes, and other cutting purposes. Thus the name of stone for other uses was merely secondary, while the widespread use of stone weapons affected the early stage of language.

As a comment on the use of the word stone for weapons and tools, and as a contrast, the word for boat is obtained in Africa from calabash or from tree. In Africa a boat is got up from two calabashes. The dug-out being less used, tree is a less common equivalent for boat. The Indian names, including the Sanskrit, conform to the African.

One point of interest in connection with this relationship is its bearing on the questions of a stone age, and on that age at an early epoch. The philological evidence obtained from the infancy of language is to the effect that the words relate to a period in which stone, wood, bone, and teeth, were used as tools and weapons, and in precedence of the discovery and application of metals. Another matter of archæological bearing, as Col. Lane Fox has pointed out, is that it is an indicator of facts, where we have not got material evidence. Thus, as he says, African stone weapons are rare, while the linguistic testimony is

strong as to a stone age, and, indeed, we cannot doubt that Africa must have passed through such an epoch.

Arrow is also equal to bone—

India.	*Arrow.*	*Bone.*
Yerukala	yikke	yamakha.
Tamil, &c.	ambu	olumbu.
Irular	ambu	zelambu.
Pakhya	kadba	had.
Khond	pinju	pasu.

Arrow = horn, which is the synonym of bone.

Africa.	*Arrow.*	*Horn.*
Bambarra	bien	bian.
Mandingo	binni	binni.
Ashantee	eben	eben.
Yarriba	owo	owo.
Tamil (India)	ambu	kambu.

In Telugu (India) arrow is banamu, in Sanskrit bana.

Arrow = tooth, which is the synonym of bone.

Khyeng, Burmah arrow, thwi thwa, tooth, Burmese.

Axe, in some cases, is equal to thunderbolt, as has been illustrated in various works, and on which some notes are here inserted. Japanese axe (stone), rai-funo-seki, signifies thunderbolt (account of Blackmore Museum, p. 222, on the "Myth of the Thunderbolt"). So also (p. 223) in Java and Malay Peninsula. Among modern Greeks they are called *ἀστροπελέκια*, or star hatchets (p. 224). Also, says Major Godwin-Austen, in the Kossyah Hills, and in various parts of the Burman Peninsula. Mr. W. Blackmore stated that in Jamaica these objects are still called thunderbolts, and among the Pueblo Indians after a storm the natives go out to seek for celts. Among the Guaranis of Brazil the name for a stone axe is korisko, which signifies lightning. As this superstition is so widely distributed, it is not of independent origin, but distributed by migration in prehistoric times.

Discussion.

Major Godwin-Austen said: The idea that stone celts are thunderbolts is very common all through the hills from Burmah to the Khasi Hills, and has more than once come personally to my notice. The Goorkhas also attribute to them the same origin. I do not know whether they have ever been recorded from that part of the Himalaya, but they are known to the people, and should be looked for there. A stone celt was found by Captain Badgley, of the Topographical Survey, at Shillong, lying on the surface, who kindly allowed me to take it to Calcutta for the museum there. When packing it up some Goorkhas of the establishment were standing by, and one of them at once made the remark in Hindostani, "Such a stone falls with the lightning."

The President and other members made some remarks.

The following paper was read by the author :—

On the Ethnography *of the* Cimbri. By Canon Rawlinson.

The data for determining the ethnological character of the great Cimbric nation, which, in the year B.C. 102-1, threatened the very existence of Rome, are unfortunately exceedingly scanty; and in dealing with the question one feels that one is moving rather in the cloud-land of historical conjecture than on the firm and solid ground of ascertained or ascertainable fact. Nevertheless, having been invited by your excellent President to read to you the paper upon the subject of the "ethnography" of the people in question, which I wrote hastily for the Anthropological Section of the British Association at Bristol last September, I venture to trouble the meeting with a few remarks. In doing so I must crave their indulgence on the double ground of necessarily hasty composition, and of the impossibility under which I lay of consulting many of the authorities with whose views I could have wished to have refreshed my memory, but whom I found it impossible to consult in Bristol.

First, then, let me say a few words as to what is historically known of this people. The name Cimbri first appears in history towards the close of the second century before the Christian era, about the year B.C. 113, when the Romans were suddenly alarmed by intelligence that the north of Italy was threatened by a new enemy, which, having burst a way through the territory of the Boii—probably the people of Bohemia—proceeded southwards, through Noricum, to the passes of the Carnian Alps (S. Tyrol or Carinthia probably), where they completely defeated the Consul, G. Papirius Carbo, who was at the head of a large army. They did not, however, at this time invade Italy, which lay open to them, but, with the fickleness of a barbarous race, turned their arms in another direction, proceeding westward, along the northern skirts of the Alps, and across the Rhine into south-eastern Gaul. Here they came for the second time into contact with the Romans, and defeated with great slaughter a second Roman consular army, under M. Junius Silanus. They were then for some years occupied with ravaging south-western Gaul and northern Spain; but in B.C. 105 they once more returned into Roman territory, and, under their king Boiorix, engaged the Romans near Arausio (Orange), and again gained a great victory. Eighty thousand Romans are said to have fallen. Still Italy was not invaded. The Cimbri contented themselves with fresh ravages in Gaul and Spain, which last they attempted to conquer. Beaten back, however, by the brave resistance of the Celtiberians of the Peninsula, they, in B.C. 103, came to the determination of at

last invading Italy. Having entered into alliance with the Helvetii and Teutones, they agreed upon a joint attack upon Rome. While the Teutones entered Roman Gaul, and threatened the passes of the Western Alps (Great St. Bernard, Little St. Bernard, &c.), the Cimbri, with their Helvetic allies, recrossed the Rhine, skirted Switzerland, and returned to the eastern Alps—the scene of their first victory—threatening to invade Italy from the Tyrol. The great Marius was appointed to confront the imminent danger. Having met and defeated the Teutones at Aquæ Sextiæ, in Provence (B.C. 102), he re-entered Italy, and proceeded to contend with the other assailing army. This army had descended the Adige, driven a Roman force before it, and made itself master of the whole country between the Alps and the Po, as far as the neighbourhood of Milan. Here the Cimbri wintered. They were hoping for the arrival of their Teuton allies, and therefore waited; but the coming of spring showed them Marius in the field, and brought them intelligence of the entire destruction of their friends. Still they were not daunted. Challenging Marius to the combat, they engaged him in the plain of the Po, near Vercellæ, on July 30, B.C. 101, and after a desperate hand to hand conflict were completely defeated, and (as we are told), annihilated. This is the last that we hear of the great invading nation of the Cimbri. They flash like a meteor across the historic heaven, strangely brilliant while within the field of our vision, but coming out of almost utter darkness, and returning to it. Whether it is really the same people which we find under the same name in the pages of the later geographers and historians as inhabiting the peninsula of Jutland, and some of the country between the Rhine and the Elbe (Strab. vii. p. 426), must be regarded as a little uncertain. Strabo identifies them, and believes the conquering Cimbri to have proceeded from the coast of the German Ocean to Italy; but, if we accept the identification, it will help us but little in our speculations upon Cimbric ethnography, since we have no trustworthy account of these northern Cimbri, and know nothing of them but their position.

With respect to the ethnological character of the Cimbri there are, I believe, but two theories—that they were Germans or that they were Kelts. In favour of the theory that they were Germans the following considerations have been urged:—

1. The supposed etymology of their name, which is referred by some to the root "kämpfer," a fighter; by others to "chempho," champions.*

* See Mommsen's "Roman History," vol. iii. p. 178; and compare Pallmann, "Kimbern und Teutoner" (Berlin, 1870), p. 27. The latter writer suggests a third etymology, viz. from (Skandinavian) *kimpari*, "to rob;" whence "kimpari men."

2. Their geographic position, before they began their wanderings, in Jutland and between the Rhine and Elbe, where the other tribes were undoubtedly, in the main, if not altogether, German.

3. Their close alliance, during the days of their glory, with a people whom all allow to be probably Germans, the Teutones.

4. Their physical characteristics of blue eyes and flaxen hair, so light in the children that the Romans compared it to the white hair of very old men.

5. Some points of their manners and customs, especially the fact that their armies were accompanied to battle and directed by *priestesses* rather than by priests.

6, and lastly. The statements of Julius Cæsar, Strabo, Pliny the elder, and Tacitus, who include the Cimbri in their lists of German nations.*

Before proceeding to the reasons which are alleged for the opposite theory, I propose to examine briefly the force of these six arguments.

1. The supposed etymology. I do not think that the Romans are likely to have made the word Cimbri out of either *kämpfer* or *chempho*. Possessing an "*f*," there would be no reason for their substituting a *b*, nor in the latter case for their adding an *r*. Kämpfer would probably have been represented by Camferi or Camfri; Chempho by Camfones or Camphi. Thus I think that neither of the suggested etymologies is tenable, neither being in accordance with the laws of Latin phonetic change. It may be added that neither receives any support from the statement of certain ancient authors,† that the word Kimbri meant "robbers;" for I suppose it will be granted that neither "fighters" nor "champions" are necessarily thieves.

2. The geographic position of the Cimbri, in Jutland and between the Rhine and Elbe, may raise a certain presumption that they were Germans, but the argument is one of very slight force. It is granted that on the Upper Rhine and Upper Danube Celtic tribes were mingled confusedly with German;‡ and it cannot be pronounced impossible, or even improbable, that there was a similar intermixture further north. The peninsula of Jutland is exactly one of those positions into which a weaker race retreats when forced to yield before a stronger one; and if the Celts (as is probable) were spread over

* Cæsar, "De Bell. Gal.," i. 33 and 40; Strab., "Geograph.," vii. p. 421; Tacit., "Germ.," 57; Plin., "H. N.," iv. 14.

† As Plutarch, who says, Κίμβρους ἐπονομάζουσι Γερμανοὶ τοὺς λῃστάς.—Mar., § 11.

It is curious that Festus makes the word have this meaning *in Celtic*. (See "De Verb. Signif.," iii. p. 77—"Cimbri lingua *Gallica* latrones dicuntur.")

‡ Mommsen, vol. iii. p. 173.

most of central Europe before the Germans arrived from the East, Jutland would very probably be held by them when the continent generally was yielded to the invaders.

3. The alliance between the Cimbri and the Teutones again tends to raise a slight presumption; but its force is (I think) outweighed by the far closer alliance between the Cimbri and the Helvetii, these latter being an admittedly Celtic tribe.

4. The physical characteristics are allowed to be such as "apply to the men of the north generally,"* while they are supposed to be "especially applicable to the Germans."† I conceive that the basis of this argument is the fact that the Cimbri are spoken of as yellow-haired‡ or flaxen-haired, rather than as red-haired, and that the children's hair seemed to the Italians almost white. Now, I believe it is true that the Celtic hair does generally incline to red and the German to flaxen; but I have myself seen vast numbers of quite flaxen-haired children in Wales, and I beg to throw out as a suggestion that red hair is rather characteristic of the non-Cymric element of the Celtic race—the Irish and the Highlanders—than of the Cymric. In this respect, then, as also in the fact of their "bright blue eyes,"§ the description of the Cimbri will apply as well to the one race as to the other, and so does not help us to draw any conclusion; but their bodily contour and physique—their tall, lank figures "‖ and easily relaxed frames, are Celtic rather than German, and stand in the way of the German theory.

5. The question of the direction in which the manners and customs of the Cimbri point is one of great difficulty. We know but very little of their customs, and not much more of the customs of the ancient Germans. The "Germania" of Tacitus is not to be depended on. It was written (I believe) rather as a satire upon imperial Rome than as a serious description of the then existing condition of the German people.¶ But I fail myself to see any sufficient ground for the assertion that their habits—so far as known—were predominantly German. It is allowed** that "their system of warfare was substantially that of the Celts of the period;" and that the wagons in which they moved from place to place "universally accompanied the Celts in their encampments."†† I find no point in their habits dis-

* Mommsen, p. 179. † Ibid. ‡ Ξανθότριχες.

§ Mommsen, *l.s.c.* ‖ Ibid.

¶ See Merivale, "Roman Empire," vol. vii. p. 298: "The *Germany* presents an elaborate contrast between the vices of a polished age and the virtues of barbarism. It is an alarum rung in the ears of a careless generation, more solemn and impressive in its tone . . . but hardly more sound than Lucan's rhetorical outcry."

** Mommsen, "Roman History," vol. iii. p. 179. †† Ibid.

tinctly singled out as "Germanic," except the part taken by priestesses in their battles. On this subject I will read the account given by Strabo of this matter, and leave it to my hearers to judge whether the whole narrative does not accord better with what we know of the bloody rites of the Druids in Gaul and Britain than with what the most trustworthy writers tell us of the religious temper of the ancient Germans. "It is reported," says Strabo, "that the Cimbri have some such custom as this. Their women join in their expeditions, and have among them some grey-haired priestesses, who wear white robes, and linen tippets (?) fastened with a buckle, and a belt of bronze. They go barefooted; and (after a battle) march with naked swords throughout the camp, examining the captives. Choosing some, they crown them with garlands and take them to a bronze basin which holds 20 amphoræ. There is a stage set up, and the priestess, mounting on it, cuts the throat of each captive in succession, holding him over the basin. From the blood thus collected they have a way of prophesying. Meanwhile, others of them disembowel the prisoners, and (after inspecting the entrails, declare to their friends what victories will crown their arms."*

I now come to the last argument—that of authority; and first as to Julius Cæsar. Now I have a great respect for the military and political genius of Cæsar,—I think him one of the greatest men that ever lived,—but I do not consider him much of an authority on ethnography.† Had there been reason to believe him personally familiar with Cimbri, as he was with Gauls, I should give great weight to his statement. But I think it exceedingly likely that he never saw one of the nation. The Cimbric prisoners taken at Vercellæ were but few—they were probably most of them sold into slavery in the plain of the Po; they would pine in servitude, and die off rapidly; and by the time that Julius reached the age of critical observation (the age of 20‡) I should doubt if many of them survived. Such as did, as domestic slaves or in the schools of the gladiators, would have become Romanised, and it would have been unsafe to draw any conclusions from them. These are the only Cimbri whom Cæsar was at all likely to have seen;§ for he never approached the Cimbric Chersonese, or crossed the Rhine, except for a couple of forays.

* Strab. vii. p. 427. † Compare Merivale, "Roman Empire," vol. i. p. 229.

‡ J. Cæsar was born B.C. 100, and was therefore 20 in B.C. 80, 21 years after the last battle.

§ Cæsar believed the inhabitants of Aduatuca to be descendants of the Cimbri and Teutons (B. G. ii. 29). He had seen them and had perhaps noted some German features about them. But these might have been derived from the Teutons.

With regard to the other writers—Strabo, Pliny, and Tacitus—they appear to me not to be really contemplating the ethnological question. They divide Germany from Gaul by a sharp line—the course of the river Rhine; and then they count all the nations east of the Rhine as Germans. The terms "Gaul" and "German" are with them "geographical" rather than ethnological, and their statements have but little bearing on our present inquiry.

Thus far I have considered what may be called the German theory; I pass now to the Celtic one.

The advocates of the Celtic theory rely chiefly on five arguments:—1. The name Cimbri, which they identify with the term Cymry or Cymraeg, which is still the native name of the Welsh. 2. The predominant authority of the Greek and Roman writers. 3. The individual names of Cimbri, which are Celtic. 4. The fact that the Romans employed Celts as spies to bring them intelligence of the designs of the enemy during the Cimbric war. 5. The manners and customs of the people, which they hold to be far more Celtic than German. They also join issue on the argument from the physical characteristics of the race, which they hold to be, according to the description given, at least as near the Celtic as the German type.

1. The name Cimbri well expresses Cymry. The consonants of the two words differ only in the additional *b* of Cimbri, a very slight phonetic corruption; one natural to Romans; one which Roman writers assert was made in this very word;* and one which was made again when a Latin-speaking race fell in with Cymry in Britain. The corruption was, I say, natural to Romans, who made from *cum* and *uro* "com*b*uro;" it was one asserted to have been made in this very word, which Diodorus and others say came by corruption from *Κιμμέριοι*; it was one which was repeated when Latin-speaking ecclesiastics became acquainted with the Cymry of western Britain, whom they called Cam*b*ri or Cam*b*rici, and their country Cam*b*ria.† The only vowel change made in expressing Cymry and Cimbri is that of the *y*, sounded like our short *u*, into *i*, which is to be accounted for by the absence of that sound from the Latin language. As the *i* was not an exact equivalent, it was not constant, but was replaced on the second occasion by *a*, which was perhaps a little nearer.

2. The authorities who state that the Cimbri were Celts, and not Germans, include Sallust ("Jugerth.," § 114), Florus (iii. 3), Appian ("Illyr.," 2; Bell. Civ. i. 29), Diod. Siculus (v. 32; xiv. 114), Dio Cassius (xliv. 42), and Orosius (v. 16). The

* Diod. Sic. v. 32; Posidonius, Fr., 75; Plutarch, Mar., § 11.

† The *b* appears also in the modern "Cum*b*erland," the land of the Cymry.

importance of these witnesses is the greater because they evidently intend their assertions ethnically, whereas the writers who call the Cimbri Germans seem mostly to speak in a geographical sense.

3. That the known Cimbrian names, such as Boiorix, are of true Celtic form,* is admitted by those who most strongly advocate the Germanic theory; and the explanation is given that the Cimbric horde would, in its wanderings, "welcome as brothers in arms all who joined it in the course of its movements," and would thus in all probability contain a Celtic element.† But that this accidental accretion should supply the actual leaders of the host must, I think, be pronounced very "surprising," and, in fact, most highly improbable.

4. The employment by the Romans of Celts as spies in the Cimbric war, is explained on this same theory, that the Cimbri were accompanied by Celts. The explanation is a possible one; but it can scarcely be denied that the fact of the employment of Celts as spies tells in favour of the Celtic rather than of the German theory; and that its force is not destroyed by the supposition of an intermixture, whereof there is no historical evidence.

5. The manners and customs of the Cimbri appear to me more Celtic than German. It is admitted that their system of warfare was "substantially that of the Celts."‡ Their use of wagons was Celtic. So was the participation of their women in their battles. So was their cruel treatment of their prisoners, and especially their offering of them to their gods in sacrifice. Altogether they were of a ruder and more savage type than the Germans, according to *any* representation of them, and one cannot but be surprised that the modern Germans should claim relationship with them.§

To sum up: in favour of the Celtic origin of the Cimbri are, 1. The near resemblance of the name Cimbri to that of one branch of the Celtic nation; 2. The assertions to that effect of so many ancient writers; 3. The Celtic character of the names of their chiefs; 4. The fact that Celts could be effective spies in the Cimbric camp; 5. The general character of their barbarism, and of the mass of their manners and customs; and 6. The main points of their physique. Against it, and in favour of the German theory, I can only see two points of any importance—the statement of Cæsar, and the fact of their hair being yellow or flaxen, rather than red.

* *Cf.*, Ambiorix, Dumnorix, Orgetorix, Vercingetorix, &c.

† Mommsen, "Roman History," vol. iii. p. 179. ‡ Mommsen, *l.s.c.*

§ Here, as elsewhere, Niebuhr was above the prejudices of his countrymen, and regarded the balance of historical evidence as indicating that the Cimbri were Celts.

Nevertheless I am quite of opinion that the point is one open to doubt, and that, unless fresh data should be obtained (which seems to be very unlikely) it will always remain among the vexed questions which will divide ethnologists.

Discussion.

Mr. Hyde Clarke said: I wish to call the attention of the learned author to a third solution, connected with his own reference to Kimmerioi, with whom the Greek authors had allied the Cimbri. In the process of history repeating itself, such an origin deserved consideration, and it was one which was in harmony with all the phenomena as much as the other two hypotheses. He was little disposed to place value on a linguistic point like Boiori, because Gaulish spies were employed for the reason that the Gauls were in contact with the invading Cimbri; and had the latter been German, the Gauls would have had more practice in communicating with them than the Romans, who were not at that time in contact with the Germans. Treating the irruption of the Cimbri as one proceeding along the coasts of the Black Sea, like the later migrations of Avars and Huns, they would come into contact with Helvetii, if not with Teutones, drive them on, and compel them to join the horde. Although the Kimmerioi had ceased to hold power on the Black Sea, their name was well known, and might have been given to the new invaders, or assumed by them. Such a horde would make its attack by the eastern passes of the Alps in Italy, and if defeated, remnants might be driven into Gaul or into Jutland, and in time conform to the language of their neighbours. With regard to physical or savage characteristics, they would apply as well to a Caucasian horde as to Celts or Germans. The Celts were at that period the least likely to raise a horde for such an invasion. With regard to the Celtic form of Boiori, that was most probably attributable to the Celtic spies applying their own kingly forms to the chiefs of the invaders.

The President and others took part in the discussion, and

Professor Rawlinson said, in answer to the last speaker, that he did not at the moment recollect anything very distinctive in the defensive arms of the Cimbri. They had, like most of the northern nations, helmets, breastplates, and shields. Their swords were of unusual length, but badly tempered. Not enough was known on these points for any decided ethnological conclusions to be drawn from them. In answer to Mr. Hyde Clarke he would say, that it was of course possible the Cimbri might have come from the Caucasian region, but there was no evidence of it. All the evidence was the other way. The Greco-Roman writers unanimously brought them from the north, from the Cimbric Chersonese, or peninsula of Jutland, from the shores of a sea apt to encroach upon the land, and from the country between the Rhine and Elbe. No doubt there had once been a great people in the Caucasian region, whose name might seem to connect them with the Cimbri;

he meant the Cimmerii; and this people might (as believed by many of the Romans) have been of the same race. But this people, which was powerful in the time of Homer (at B.C. 1000), and again in the seventh century B.C., when they overran Asia Minor, had sunk into weakness long before the time of the great Cimbric invasion, and could not possibly, if it still existed in or about the Caucasus, have sent out such hordes as those which, towards the end of the second century B.C., threatened Italy. He thought we must accept the unanimous testimony of the ancient writers as to the direction from which, and even (in a general way) the country from which, the Cimbri set out to make their attack upon the south. Tradition was rarely mistaken in such matters. In conclusion, he would repeat that the evidence seemed to him scarcely sufficient to justify any decided and absolute conclusion, but he thought there were strong grounds for regarding the Cimbri as either Germans or Celts, and on the whole it seemed to him that the balance of the evidence was in favour of the Celtic theory.

Mr. Brabrook read the following paper for the author:—

On the HUNEBEDDEN, *or* CROMLECHS, *in the* PROVINCE *of* DRENTHE, *in* HOLLAND. By D. LUBACH, M.D.

IN February, 1872, Mr. A. W. Franks made to the Society of Antiquaries a communication respecting the megalithic monuments of the Netherlands. His object was "to call attention to this interesting group of antiquities, and more particularly to direct the notice of the Fellows of the Society to the efforts that are being made by the Government of the Netherlands for the preservation of these precious memorials of the past." It is for this reason that his description of the hunebedden of Drenthe is very short; indeed, it does not take one page of the nine which his communication fills in the "Proceedings of the Society."

I have thought that it might be interesting to the British anthropologists and students of primæval antiquities to give a more detailed account of these remarkable remains, which are so little known in England, just as, to say the truth, the Netherlands in general are still in many respects a *terra incognita* for the English. This is proved by the great number of often incomprehensible errors with respect to the natural constitution, the inhabitants, their customs, and the institutions of this country, which are stated in English books as indisputable truths.

The province of Drenthe, in Holland, consists of a diluvial plain, the middle height of which above the surface of the sea is more than ten miles, gradually sloping towards the borders of the province. The soil consists of diluvial sand and loam,

mixed with stones and gravel—so-called Scandinavian diluvium, the stones and petrifications of which are the same as those of some regions of Scandinavia. A considerable part of this diluvium is covered with turf, and some small rivulets and brooks have set off along their borders a layer of clay.

Though agriculture in Drenthe has made great progress in late years, a great part of the soil still lies uncultivated. In general Drenthe is in many respects the most backward province of the kingdom of the Netherlands, and one often meets there much, especially with respect to institutions and customs, of which nothing is found in the other provinces.

If Drenthe is in this respect remarkable for the archæologist, it is particularly so on account of the grave-mounds, or *tumuli*, and *cromlechs* (these latter called here, as in North Germany, *hunebedden*), which are found here. These cromlechs are not found in other regions of the Netherlands, with the exception of a doubtful monument in the province of Utrecht, near a village called De Vuursche. The *tumuli* in Drenthe are not very high, generally 1 metre or 1½. Their form is round, oval, or sometimes square, and their diameter is from 3 to 5 metres. However, there are also found oblong ones, some of which are from 3 to 5 metres in breadth, and from 10 to 30 metres in length. Formerly many of them were surrounded by circles of stones, which have now disappeared everywhere.

The diggings have taught that in the tumuli are found—(1) urns of rude pottery, containing burnt bones of men; (2) small heaps of human bones; (3) objects of earthenware, as drinking-cups and other vessels, discs, &c.; (4) implements of bronze, rarely of iron, but, with one exception, never of stone; metal spear-heads, arrow-heads, knives, daggers, the fragments of a sword, celts, in form very similar to those found in England, hairpins, fragments of armlets, &c. The urns are often adorned with lines or rows of punctures. If there are more urns than one in the same tumulus, then they are often placed one above another, and sometimes they are in an inverted position, with their mouths resting on the ground. In some tumuli no urns are found, but only heaps of burnt bones; in others there are found similar heaps and urns. There are found urns which contain small urns, filled with bones of little children; in this case the great urn probably contains the bones of the mother. The place of the urns and the heaps of bones in the tumuli differs greatly. They are placed—(1) simply in the earth of which the tumuli are made; (2) on a little mound of pebbles in the interior of the tumulus; (3) on a floor of pebbles; (4) between two floors; (5) within an enclosure of larger stones; (6) in a small cellar or cist in the form of a trough. Where a floor of pebbles is found

it sometimes extends very far outside the tumulus, underneath the surface of the heathy plain. The stones of the floor of a tumulus near Borger filled about a hundred carts. The earth of the tumuli is very frequently mixed with a considerable quantity of charcoal and ashes.

The opinion of the Dutch, and, if I am not mistaken, of most of the German antiquaries, is, that the tumuli of this description are Germanic.

The megalithic monuments of the Drenthe, commonly called "hunebedden," consist of large capstones or covering-stones, commonly of granite, supported by smaller upright stones. The uprights form two rows, with a space of one or two metres between them. The space between every two upright stones of the same row differs, but generally it is broad enough to suffer a man to creep through. The capstones are placed transversely, so that every capstone rests on the two rows or walls of the monument. The two longer sides of a hunebed, formed by these two rows, are never parallel; they constantly diverge towards the west, or towards that part which is nearest to the west, the consequence of which is that the inner chamber is widest at that end. Generally, also, the upright and the capstones increase in bulk towards the west end, and thus the whole hunebed is there not only broader, but also higher. The middle distance between the under surface of the capstones and the floor of the inner chamber is one metre. Undoubtedly the open spaces between the upright stones and the capstones originally have been filled up with small fragments of rock. In the hunebedden that are best preserved, each end of the inner chamber is closed by one stone that in every respect resembles the upright stones which form the longer walls of the construction, and each of which forms one of its two smaller sides. The Dutch antiquaries call these stones *sleitsheenen*, closing-stones; we shall call them end-stones. It is not probable that the entrance of the hunebedden was at one of the smaller sides; it seems to have been at one of the longer ends. In many instances there is found a so-called "portal," consisting of two rows of two or three stones each. These rows are at right angles with one of the longer sides of the hunebed, and placed rather towards the south end. These portals are never covered with capstones, but in Germany they are, and it is highly probable, if not certain, that the portals of the hunebedden of Drenthe formerly possessed them too.

The outer side of the upright stones is always rough and angular, or somewhat rounded; the inner side, on the contrary, is flat, and sometimes so smooth that it seems to have been roughly worked. The same is the case with many of the cap-

stones, the under surface of which, forming the ceiling of the inner chamber, is not unfrequently very smooth. Some of the capstones, the outer surface of which has a somewhat rounded form, bear at a distance a resemblance with huge bed-pillows flung across the two walls of the hunebed. If the capstones of all the hunebedden had such a form, which is not the case, however, it might be conjectured that the hunebedden (beds of hunes) were so called because of the resemblance. In some of the stones of which the hunebedden are formed small holes are found, evidently bored, of the depth of 1 centimetre.

I must add to what I have remarked about the structure of the hunebedden, that many of them (originally, perhaps, all of them) are surrounded by a row of stones, that are placed at a distance of about three steps from the hunebed. The position of the hunebedden with regard to the points of the compass is not, as has been asserted, invariably in an eastward or westward direction. It appears from the researches of the late Mr. L. J. F. Yanssen that the position of the fifty hunebedden which he investigated is as follows:—

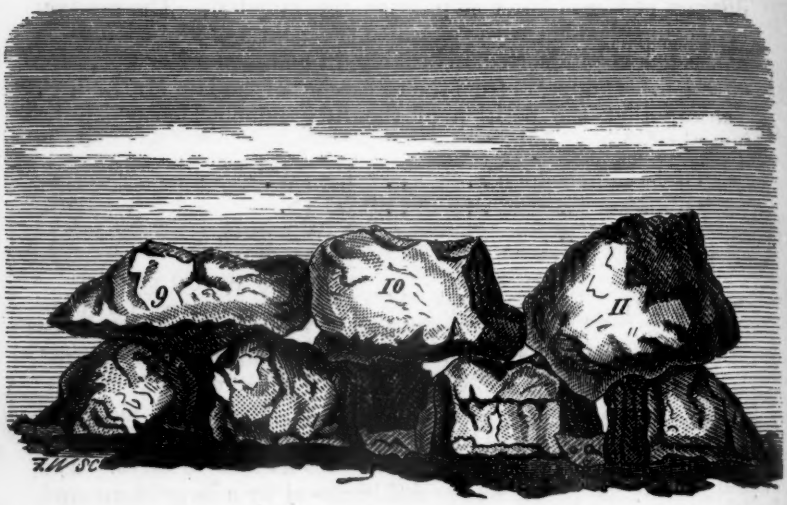
Of 15	hunebedden	E.—W.
Of 2	„	N.—S.
Of 24	„	N.W.—S.E.
Of 6	„	N.E.—S.W.
Of 2	„	N.W. by W.—S.E. by E.
Of 1	hunebed	N.E. by E.—S.W. by W.

At least two-fifths of the existing hunebedden are situated on the top of a low barrow or hill, in a hollow that is, however, rarely so deep that the monument cannot be seen at a moderate distance. In my opinion there cannot be any doubt at all that the hunebedden were originally covered with mounds of earth. The entrance of the portal was probably closed by a large stone, and perhaps it was also covered with sand.

In the province of Drenthe there are still existing 55 hunebedden. Their number has been much greater, probably the whole of Drenthe, especially the eastern half of the province, was once covered with this kind of structures. When Christianity was introduced in Drenthe, which happened in the latter half of the 8th century, the Drenths began to destroy the heathen monuments, previously regarded with awe and veneration. It is probable that many churches have been built of the materials gathered from the hunebedden. Part of the village of Odovru and of the tower of the church of Emmen, consist of irregularly formed stones of the same nature as those of the hunebedden. The same materials were used for the walls around the churchyards, for foundations of dwellings, for mark-stones, &c.

Afterwards many of the hunebedden have been demolished by gunpowder, to procure stones for sea-dikes and for pavements. A proclamation of the Government of Drenthe of the 21st of July, 1734, renewed on the 6th of November, 1818, by which it was forbidden to disturb the hunebedden and other ancient monuments, was of small avail, because the hunebedden are situated, in most cases, on grounds belonging to private persons, or are owned in common by the inhabitants of the adjacent villages, who, by inheritance, have a right in them.

In 1868 Mr. L. Oldenhuis Gratama, counsellor in the court of Drenthe, addressed an "open letter" to the college of the Deputy States of Drenthe. He asserted in this that the hunebedden are *res religiosæ*, and therefore *res hullius*, and that,



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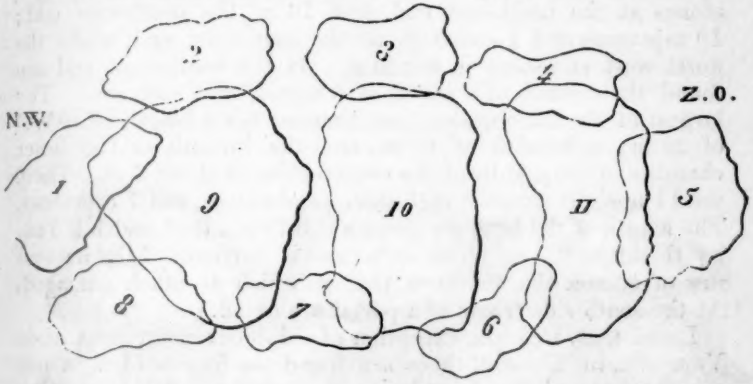
according to our laws, they are as such the property of the state, which on that account is justified and obliged to take measures for their preservation. The Royal Academy of Sciences, on receiving this "open letter," addressed a letter to the Minister of the Interior, urging him to use all his influence for the preservation of the hunebedden, and in the Second Chamber of the General States, of December, 1868, Baron Slaet van de Beele endeavoured to instigate the Government to promote the preservation of these *reliquiæ*. Minister Sock, however, in order to avoid contention with the peasants of Drenthe, who are very jealous of their rights of property, chose another and more practical way, by voting a sum of money for the acquisi-

tion of the hunebedden by the state. By the care and zeal of the Royal Commissary of Drenthe, Mr. Y. L. G. Gregory, 31 of the 55 megalithic monuments of Drenthe have become the property of the state, and 21 the property of the province of Drenthe, while one belongs to some of the inhabitants of the village of Finaarloo, and another to an inhabitant of Westenesch. Many of the hunebedden and cists of Drenthe are much damaged and disturbed. Of some but a few stones are still existing; of others the stones have sunk and sunk, and have been removed from their original place, which is partly the fault of imprudent diggings in search of treasures and antiquities. The best preserved of the hunebedden is that situated near Finaarloo, which is regarded as typical. It is for that reason that I give a more ample description of it.

This hunebed consists of two rows of upright stones, each of



PLAN OF THE HUNEBED OF FINAARLOO.

three stones, two end-stones, and three capstones. There are neither traces of a portal nor of an outer circle of stones.

The length of the whole hunebed (S.E.—N.W.) is 5.70 m., its greatest breadth 3 m., its greatest height 1.57 m. The dimensions of the several stones are as follows:—

Upright stones and end-stones.

		Ms.		Ms.		Ms.
No. 1	(end-stone)	is high 0.75,	broad	1.00,	thick	0.46
„ 2	(upright stone)	„ 0·70	„	1.00	„	0.56
„ 3	„ „	„ 0.75	„	1.25	„	0.53
„ 4	„ „	„ 0.66	„	1.00	„	0.75
„ 5	(end-stone)	„ 0.71	„	1.00	„	0.75
„ 6	(upright stone)	„ 0.72	„	0.92	„	0.35
„ 7	„ „	„ 0.64	„	1.00	„	0.58
„ 8	„ „	„ 0.72	„	1.13	„	0.32

Capstones.

		Ms.		Ms.		Ms.
No.	9 is high	0.66,	broad	2.00,	long	2.00
„	10 „	0.81	„	2.00	„	1.00
„	11 „	0.88	„	2.45	„	1.26

All the stones are of granite.

Much larger, but also much more damaged, than the hunebed of Finaarloo is one of the hunebedden near the village of Borger, and another near Emmen. The former has a length (N.W.—S.E.) of 22 m., its breadth is 3.8 m., its greatest height 2.8. m. The breadth of the inner chamber is, at the west end, 2.5 m., at the east end 1.70 m. The space between the upright stones is 0.85 m. The length of the largest capstone, which is one metre thick, is more than 3 m., its breadth is 2 m. There are 12 upright stones at the north-east end, and 13 at the south-west end; 10 capstones and 1 end-stone at the south-east end, while the north-west end-stone is wanting. At the south-west end are found the remains of a portal of 6 stones, 3 in each row. The largest of the hunebedden near Emmen has a length (E.—W.) of 26 m., a breadth of 13 m., and the breadth of the inner chamber in the middle of the construction is about 3 m. There are 11 upright stones at each side, 2 end-stones, and 7 capstones. The length of the largest capstone is 3.75 m., its breadth 2.5 m., its thickness 0.5 m. The structure is surrounded by an oval row of stones, the southern part of which is much damaged. At the south side traces of a portal are found.

I said that, with the exception of a dubious monument at de Vuursche, in Utrecht, there are found no hunebedden in our country beyond the boundaries of Drenthe. An interesting specimen, however, exists in the province of Groningen, but it is situated very near the frontiers of Drenthe, and in a part of the province that formerly belonged to Drenthe. This is the hunebed of Noordlaren. It has 4 upright stones, 2 capstones, and 1 end-stone at the north-east end. It seems that originally it has been much larger, and that the biggest stones at the south-west end have been removed. The largest of the existing capstones has a length of 3.5 m., a breadth of 2.25 m., and is 1.5 m. thick. There are traces of a surrounding circle of stones. A fair and typical example of a hunebed, which is, however, of no great dimensions, may be seen near the road from Odovru to Emmen. It consists of 3 upright stones at the northern, and 4 at the southern, side, with an end-stone at each end, and 4 capstones. The length of this hunebed is 5.5 m., its breadth 2.2 m., its greatest height 1.5 m. All the stones are in their right places, but, to say the truth, this hunebed has been restored.

Between the hunebed of Finaarloo and the scanty remains of other monuments of the same kind, only consisting of a trilith or some scattered stones, there are others in all grades of preservation or destruction. My purpose is only to fix the attention on the hunebedden of Drenthe, and to give a general idea of their structure, not a complete description, and therefore I don't think it necessary to expatiate on other monuments of the same kind: for instance, the picturesque hunebedden near Rolde, or one of those near the way from Borger to Rumen, the capstones of which are uncommonly flat on the upper side; the triple

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hunebed near Emmen, which may be compared to the double cromlech of Plas Newydd (Jewitt, "Gravemounds and their Contents," page 54), and others. But I must say something about three monuments that are not hunebedden, that is to say, that are not cromlechs but cists (Dutch, *grafkelders*, *i.e.*, grave-cellars). One of the three was discovered in 1756 near the little village or hamlet of Eext, in a tumulus on the heathy plain. The visitor ascends a low tumulus, and arriving at the top finds in it a quadrangular cave or cellar, into which he

descends by means of a kind of stairs of four steps, formed of pebbles. The cellar has a depth of 1.3 m. The northern and southern walls consist each of three flat stones, tightly joined together, but the stones of the southern wall are not so broad as those of the northern, because a space of 0.6 m. has been used for the stairs. The breadth of these walls is about 3.7 m. The eastern and western walls are made each of one stone, the eastern having a breadth of 1.7 m., the western of 2.05 m., so that the cellar is somewhat broader at the west than at the east side. It will be remembered that the hunebedden also are somewhat broader at the west side, and that the portals are always found at the south end. The floor of the cellar consists of earth covered with grass. When it was discovered it was covered with three capstones, which have, however, disappeared.

Recently two other cellars of a similar description have been found near Emmen. I visited these in May, but my occupations did not permit me to examine them very closely. The cellars are very near each other, and the space in which both of them are found is surrounded by an oval row of stones, which I suppose to be about 1.5 m. high and 0.9 m. broad. The capstones have been preserved.

It is my opinion that all the hunebedden have been explored. In ancient times many have been destroyed in the hope of finding treasures in them. Afterwards they have been searched by antiquaries, but, as it seems, not always with sufficient care. It appears from the researches of the latter that, after removing the sand from the floor of the inner chamber, a floor of pebbles was found; beneath this floor, and sometimes resting on another floor, were found, imbedded in sand mixed with charcoal and ashes, urns with burnt bones, fragments of rude pottery, arms, and other implements, in contradistinction to the tumuli, always of stone, never of metal; celts, knives, arrow-heads, hammer- or axe-heads, &c., partly made of flint, partly of granite, syenite, serpentine, jasper, agate, chorite, &c., and of various degrees of finish and workmanship. Between the two floors of the grave-cellar at Eext, there are found urns, celts, a hammer or axe with a hole in it, a flint arrow-head, and a globe of *yzer-oer* or iron ore (hydrate of oxide of iron), a substance frequently found in layers in the diluvium of the Netherlands.

As I have said, it was merely my intention to give an idea of the structure of the cromlechs of Drenthe, not an exhaustive description of these monuments. I only remark that the general opinion of the Dutch antiquaries and ethnologists is that the hunebedden are prehistoric places of sepulture, erected by a pre-Germanic race, that was not, or not yet, acquainted with the use of metals. I have explained this more amply in a paper on

the hunebedden, in the Dutch monthly journal, *Album der Natuur*, but a full examination of this subject cannot find a place within the narrow compass of the present communication.

The meeting then separated.

MAY 23RD, 1876.

AT a SPECIAL MEETING held in the Theatre of the Royal School of Mines, Jermyn Street, by permission of the Director-General of the Geological Survey,

Colonel A. LANE FOX, *President, in the Chair*,

Lieutenant CAMERON, C.B., R.N., gave the following account of the anthropology of the regions traversed by him in his recent journey across Africa.

The lecture was illustrated by diagrams enlarged by Captain Dillon from Lieutenant Cameron's own sketches, by maps, and by objects from the West Coast of Africa, for comparison with similar ones described by Lieutenant Cameron.*

The PRESIDENT: The remarks which I shall make by way of preface will be very brief. We are mainly indebted to the Geographical Society for originating this successful expedition of Lieutenant Cameron. This Institute is not in a position to originate important investigations of this kind. The reason of that, I am sorry to say, is, because the people of this country know their geography far better than their anthropology—if it can be said that the majority of persons have any knowledge of anthropology at present. We have compulsory geography, but not at present compulsory anthropology, and I am afraid it will be some time before people realise the fact that "the proper study of mankind is man."

But we are not without some claim to the honour which Lieutenant Cameron is about to do us to-night. He is the first African traveller who has gone out with a prepared list of queries furnished by the Anthropological Institute. The expedition was got up in a great hurry, but as soon as it was decided upon, the officers of the Geographical Society, with the friendliness to anthropologists which they have always shown to us, immediately informed us of it. Not more than two or three days were allowed us, but I immediately set to work to get up a series of queries from some of our leading anthropologists, amongst whom were Mr. Franks, Mr. Evans, Prof. Rolleston, Dr. Beddoe,

* The illustrations for Commander Cameron's paper will, it is hoped, be given in the next number of the Journal, but they are unavoidably postponed for the present.

Mr. E. B. Tylor, and others, and those queries were printed in a little book just in time to put them into Lieutenant Cameron's trunk after it had been packed up. I trust those queries may have been of some use to him; at any rate they could not fail to impress him with the fact that there existed in this country a body of anthropologists who were deeply interested in his travels, the result of which he is going to give us to-night.

Lieutenant CAMERON: It is with a considerable amount of nervousness that I come here to-night to talk about anthropology, which I believe to be one of the exact sciences, and, as a sailor without any particularly exact education, I cannot claim to be an exact scientific man. Another great difficulty about the anthropology of Africa is this, that the east coast of Africa has been flooded with emigrants, colonists, and traders from all the Semitic tribes of Asia. Owing to this the diversities of type are many and various. The pure type of negro does not at present exist on the east coast. We have heard of different waves of people arriving on the east coast, who afterwards were driven further into the interior. According to tradition the Kafirs are descended from heathen Arabs before the time of Mahomet. The Hovas of Madagascar are of Malay origin, and as I travelled away from the coast, I believed by the form of feature that the Wanyamwesi were the same race as the Hovas. The Hovas wore long hair reaching down their backs, which, owing to the mixture of negro blood, the Wanyamwesi could not do, but in lieu thereof they wore long ringlets made of fibres of trees mixed with their wool, and some wore wigs reaching down their backs, made of the same material. Another proof of the identity of the Wanyamwesi with the Hovas was this: everywhere the Wanyamwesi used bellows worked vertically, worked up and down with their hands, and covered with hide. The only case where the goatskin bellows are used is where the civilisation of the Arabs has extended.

The manners and customs of these natives have been so fully treated of by Captain Burton, that all I have to do with reference to those nations is to refer you to the work of Captain Burton, a work which for minuteness of description and for accuracy of detail in every branch stands unequalled. Burton alone, of all men who have travelled in Africa, has collected all these facts and put them into a readable form in a short space. His work, unfortunately, has never been published beyond the Journals of the Geographical Society, but it ought to be in the hands of every one who feels any interest in Africa. I travelled through that country with Burton's book in my hand. I did not believe such a book could have been written, it was a verbal photograph of the countries

through which he passed. After I left the countries through which Burton had travelled, my first considerable journey was round the southern portion of the Tanganyika. Most of the tribes I first saw had been so mixed up with slave traders that very few marked peculiarities remained. At Ufipa we found the people almost ignorant of the outside world. They wore cotton cloth of native manufacture, which was a coarse sort of heavy cloth, the patterns of which were a sort of shepherd's plaid, or a white ground with large squares formed by black lines, all having the inevitable fringe. They cultivated cotton and wove it themselves. They were expert makers of pottery. They worked their clay with water, until it became a perfectly homogeneous mass, and gradually formed it into a rough shape, and as they wanted it they worked it with pieces of broken gourds to give the curves, and when finished they were as truly formed as any of those dug up in Pompeii or Herculaneum. Passing down the coast of Tanganyika, at the south end we found the greater portion of the inhabitants had deserted their villages owing to the arrival of the Watuta, the same people as the Mazitu of Dr. Livingstone. They held the country under contribution, destroying the villages and carrying off live stock of every description, and when one country was desolated, seeking plunder in fresh fields. The natives are always afraid of resisting them, as any resistance results in indiscriminate slaughter. However, these Watuta are never unfriendly to the caravans that pass them. They have a wholesome dread of gunpowder.

After rounding the south end of Lake Tanganyika, we went up the western coast to a point rather beyond the Lukuga. We came to the Waguhha, which are simply a branch of the great nation of the Warna. These Waguhha welcomed me warmly when I came to them. Their differences are very marked from the tribes east of the Tanganyika. They dress their hair in a very elaborate manner, dividing it into four portions, each of which is worked into a plait turned over their heads with the ends doubled back so as to make a sort of cross of plaits, and the edges are ornamented with cowries, beads, and other things. It looks very much like a coronet. The ladies usually wore tattoo knives. Tattooing does away to a great extent with the necessity of clothing. The clothing only consists of a piece of cloth round their loins and an apron reaching to the knees in front. The patterns are depicted on the diagrams. These women all seemed to be very happy in their relations with the chief.

After leaving Uguhha I went to Ujiji, and after sending some things down to the coast, returned to the west coast of Tanganyika and marched on to the west. After a time I came

to Ubûdjwa. The ladies here adorn their faces with paints of different colours. In the lower classes there were several very peculiar habits. The women especially amused themselves—I don't know whether it is an amusement—by perforating their upper lip, and inserting a stone an inch or an inch and a half in diameter, which projected in front something like a duck's bill, and caused their speech to be very inarticulate; their own countrymen could not understand them. Their clothing was a small cloth in front and what looked like leather sewn into the shape of buffaloes' horns, of which a lady of rank wore three or four. From Ubûdjwa we went to Uhiya. The people here wore what were called, when I left England, "chignons," made of leather. These were about the most hideous head-dresses that ever were invented. The other part of the dress of the women of that country is shown on the diagram. Then we passed on to the people who wore straws through their noses, and the hair worked into various forms.

Passing over some mountains we came to Uvinza; here we found people with their hair done neatly and regularly with mud worked into it. Then we came into a country where we found the clothing of the men consisted of a small skin in front and behind, whilst for a woman this would be a large amount of clothing, for a lady wore only a string round her waist, with two small aprons depending from it. The men worked their hair into different forms, plastering it thickly with clay, and between the particles of clay shaving it clean. The ladies wore something very like an old-fashioned bonnet. There was little or no tattooing. In this country of Manyuema the huts are like the sketch, with gable ends, and the villages are built with long streets. The oil palm is planted up and down the whole length of the streets, and there are small huts in the centre for granaries or small stores of ivory. Going on through Manyuema, the Arabs got into trouble with the natives, who were in great force. Luckily they had no arms except wooden shields and spears. After a few days the affair was settled, and we went on again. We then came into a country where the iron trade is in full force; in fact this country might be called the "black country" of Africa. I have seen foundries 50 feet long by 30 feet wide. As many as 20 bellows are worked at one time, and 150 to 200 pounds of metal are frequently obtained in one smelting. Afterwards, as it runs out of the furnace, the iron is at once hammered into small pieces, weighing about three or four pounds, with long pieces at each end. The general work of the smiths in this part of Manyuema is astonishing, not only articles of ordinary use, but also, to a great extent, of ornament are made. The shapes

of their knives are various. The blades of their swords are inlaid with copper for ornamentation, and I have seen pieces of iron-work, with representations of the human form, made by means of hammering. They have no files, but only a rough chisel and a hammer, nevertheless many things they turn out are as completely finished as if they had been worked out by the most experienced artisans in England. From there we passed on to the Lualaba river, where first I came into contact with the Wagenya. They only live on the islands in the river and on a strip of land on its left bank. The Wagenya possess the whole carrying trade of the river, carrying people to the different markets, which take place in different localities nearly every day.

The women occupy themselves in catching fish and making pottery. Nearly all the pots are of a large egg-shape, but this pottery and many others are also brought by other tribes. The rest of the country is split up into many small tribes, every village, or every other village, having a chief. The Arabs take advantage of these divisions and the consequent feuds to carry on the slave trade. After leaving there I had to strike away south, and as I went on, the first chief of importance I came to was called Russuna, where I was warmly welcomed by him and his wives—a very much warmer welcome than I cared about; however they were the best-looking ladies I ever saw in Africa. They came to my tent to visit me, and were very much puzzled to know whether I was white all over: I thought they were going to pull off my clothes.

We went on and came to the camp of Tipo-Tipo, where I received a visit from a chief called Kasongo, who must not be confounded with the great Kasongo chief of all Urua. It was rather longer work than a levée in England. We were turned out about half-past six. There were his chamberlain, his aide-de-camp, his commander-in-chief, and a man who was evidently master of the ceremonies. We sat in an open hut waiting for him. The master of the ceremonies told each person where he was to wait. After about three or four hours there was a great playing of drums and other musical instruments, and Kasongo himself, with a number of his daughters, arrived, and they favoured us with a dance. He looked upon it as a very serious business at the time; he had his sword on his shoulder and his daughters danced opposite to him. After he had done his dance he was brought into a shed and we had a long talk, and the chamberlain told him that he was a very great man—however, I had reason to form a different opinion. I then went on working south, and the tribes began gradually to assimilate more in

appearance. On our way down we found in many places that the men wore enormously long beards, plaited and twisted till they came down to their waist. It was simply like a Chinaman's tail grown on a man's chin. The arrows and bows were the largest I have seen in Africa. The arrows were a yard long, and I have seen a man with a bent bow which reached up to his chin, resting on the ground.

Coming to the capital of the great Kasongo we got into a little trouble, which has nothing to do with anthropology or ethnology; the only thing that caused the row was that we were a small party, and they thought we must necessarily be slave traders (the guides were very bad in translating what I wanted to say), and for this reason they wanted to revenge themselves by robbing us of our stores and making slaves of us.

We then came down to the capital of Kasongo, the great chief of Urua, which is the most important state of Africa; it extends from 4.30 to 13 degrees south. It extends from Tanganyika to 24½ east longitude. The chief, by tradition, is one of an old family, and closely related to Mata Yafa, the great chief of Ulunda. The ranks are well defined in this country. I have seen a man, who is considered ordinarily to be a very important man indeed, dare to sit down whilst a man of superior rank was standing up; he was called away, and reprimanded for sitting down in the presence of his superiors. If I had not been there he would have lost his ears. The chief himself was not approached by his subjects without their bringing him bags full of pipeclay or cinnabar as presents. They used to rub themselves all over the breast and up their arms, and used to sing out a great many different titles. On great occasions they had not only to do this, they had to whiten their faces, arms, and legs.

There was a great levée whilst I was there, and a Portuguese trader, an Arab trader, and myself had all to attend. All the chiefs came in their Sunday go-to-meeting clothes, with a boy carrying his bag of pipeclay. Each as he came up gave his sword to the boy carrying the bag, rubbed himself over with pipeclay, and, after nearly covering himself with it, took his sword, made a rush as though he were going to cut down the chief, and, shouting out all his titles, went down on his hands and knees before him, whilst the chief stood up perfectly erect in front. On one side of the chief was the chamberlain, dressed in a tiger-skin apron reaching up to his shoulders, with a long stick; in front stood another of his aide-de-camps or equerries holding a peculiar sort of axe, and behind him a woman holding a similar one. As every man came

up to him there was a sort of chant about the greatness of this Kasongo. He gave us a speech of about two hours relating to the greatness of himself; he was the greatest man in the world. The only man to be compared to him was Mata Yafa, who was his friend and relation. In the same country I saw a performance of fetish men. I heard a row going on, and I saw a man going round with a small bunch of bells behind his waist, and two women and a boy following him. He had round his neck a huge assortment of nasty objects, dried birds' heads, &c.; his face was whitened, and he wore a broad band, a foot deep, covered with beads, with a sort of grenadier's bearskin of feathers above it. He walked round the village for some time, and then sat down. I saw that some of the women apparently worshipped him. Afterwards came another gentleman, similarly attended and dressed, until four or five of them were there.

All the natives came to salute them. They brought very good pay for their priests, and they consulted the idols. Some of the priests were very good ventriloquists, and made the idols appear to give answers—favourable answers—to what the people inquired about. If a man did not bring a sufficient offering, the answers were not favourable; as the gifts increased the answers became more favourable. A further curious thing I heard about in Urua is the only system of actual worship I heard of in Africa. There was an idol called Kungwé a Banza, who is supposed to have his home in a jungle, to which nobody has access except a woman who lives there as the wife of this idol. The whole place is guarded by priests. I tried very hard to find out where he lived and to pay him a visit, but I never could get a true direction as to his place. I knew very well that great amounts were paid by different people and different chiefs to the priests. I used to get behind a man and say "Kungwé a Banza," and the man seemed frightened, and jumped almost out of his skin. I tried very hard to get some actual knowledge about this, but I only got very vague descriptions.

These people won't allow anybody to see them eat or drink, and they are especially particular about any of the opposite sex seeing them eat or drink. I had to pay a man to let me see him drink; I could not make a man let a woman see him drink. Another peculiarity is that every man and woman cooks independently; each person must have his own fire. The chief had about 3,000 women. He marries in the most indiscriminate manner; amongst his wives are his sisters, his mothers-in-law, and his own daughters, and indeed anybody he fancies is instantly added to his harem. We then passed through

Ussambi and came to Ulunda. In Ulunda we found the country all jungle and wild. I have no doubt Mr. Cooley is perfectly correct as to the name being wild country. The people dress very badly, and are ragged and careless in appearance; they are very timid in approaching strangers. They don't have any large villages, their clearings are only two or three acres in extent, with one or two huts in them. Their huts are like rabbit-hutches or dog-kennels; I have seen them only four feet high.

In Ussambi and Ulunda are great quantities of copper brought for sale. The diagram represents the size and shape in which it is brought for sale. The St. Andrew's crosses weigh about three or four pounds each; about twenty of them constitute a load. A smaller one of about one-fifth of an inch long in diameter, is dug up near the Lualaba; it is the only trace of the civilisation of the ancient inhabitants I have found in Africa. I have never been able to trace where or when they were made; they are dug up in large quantities. They find it sufficiently profitable to work up these small pieces into larger ones.

Passing on from Ulunda, we came to the country of Lovalé, where we met numerous caravans which had come from the coast to purchase bees' wax and slaves. The people are chiefly remarkable for the shape and variety of their arrowheads, showing an acquaintance with the smith's art, while the iron is imported from countries on both sides of them. Among the industry and exports of the people of Lovalé are the fish which they catch. Their country lies on the watershed, and in the rainy season the country is flooded about 2 feet 6 inches deep for a long distance. The people form small dams, and when the water drains off they catch their fish; these are smoked and dried, and with them they obtain their necessary supplies of cloth, salt, beads, and other things they wish for. The people of Lovalé go in numbers with the people of Bihé to obtain slaves, and are greatly interested in continuing the slave trade. The country is a poor country except for the supply of fish, and as long as they have the power they will get slaves from the eastward of them.

We next came to Kibokwé. This country is more hilly, and they have not the resources of fish; the great article of trade is bees'-wax. The honey, which would be a drug, they utilise by making a sort of mead, which I found was very good, when I had been nearly two years without anything to drink except water and coffee made out of Indian corn: I believe many people here would think it very good. All these people were very strong on different fetishes; every tree, if you leaned

against it, was a fetish tree, and unless you paid a heavy fine some trouble would come to the village. In fact, these fetishes were anywhere and everywhere, and were much used to bother and annoy passers by. When I got to Bihé I found a few Portuguese settled: they claimed the settlement without the slightest right. The chief considers himself a great man; he wants every white man to sit down at his feet and kneel down to him. I told him I was not a trader, I bore Her Majesty's commission, and I was not going to do anything of the sort, and I was as good a man as he was, and he had to give up his idea, though he makes the Portuguese do as he pleases. At Bihé I found, owing to the constant communication with the coast, that the greater part of the distinguishing marks of tribes had faded out, and that the great number of slaves brought down had made it difficult to find anything peculiar to Bihé. For twenty years a man called Msiri, a chief from Ukalaganza, has been settled at Katanga, and he has forced all the people round there to adopt the Nyamwesi tribal marks, and before he allows Bihé people to settle there he makes them do likewise.

Ukalaganza is about 360 miles from the east coast, and people belonging to Msiri trade to Benguella. It shows how much tribes and nations are mixed up at the present day. At one place I saw a different kind of dress; the women wore what looked like bolsters round their necks—something like John the Baptist's head in a charger. There was one curious thing in Bailunda, the women were beating their corn with a sort of mallet on a piece of granite. Although so close to the coast, I found marks of that horrible slave traffic still desolating the fairest portion of the globe. I don't know whether what I have said is according to the ideas of the Anthropological Society, but I have done my best. It is very difficult for me to speak or lecture upon a subject in which I am not well up.

There are two things Colonel Fox wants me to speak about. In nearly all countries stone implements have been found, but I have never seen anything which can be fairly called a stone age; the only thing I have seen in stone would explode the theory. At Cairo I saw Mr. Dixon's brothers exploring the great Pyramids. I believe they lodged what they found in the British Museum. One of them was a copper boathook, the other was a round piece of stone, which Mr. Dixon supposed to be the weights with which the women weighed out the lentils.

At very many places I saw many of those stones where they had no knowledge at all of weights and measures. What were

they? They use in many parts a stone for grinding their corn, and they run in the hollows, and don't work properly. The slabs are chipped with small stones, which in time become perfectly round like small cannon balls. Another curious thing is the corrugated blade, which Colonel Fox can tell you more about than I can. I have found this form all over Africa. I asked how it was done, and they told me they got it on the anvil and tapped it and turned it over; I could not find out more than that. I said, "You have this sort of arrow." They told me that that was only used for short distances, and the other a long way. This was simply a sort of rifled arrow which shoots true at long distances.

Discussion.

The President: All anthropological questions ought to be considered under two heads—Race and Culture—and Mr. Cameron has given us some information as to both. The African race is one of the greatest possible interest to anthropologists on account of its being probably one of the most ancient in regard to its continued occupation of that continent. Europe has been subject to great geological changes in comparatively recent times, and we are able to trace man back as far as the glacial period, but we have no evidence of man in Northern Europe earlier than that. Africa is the oldest continent in the world, having been above the sea ever since the Jurassic period, and, since it was first peopled by man, there have been no geological changes which could have driven him from it. Our traditions lead us to believe that the human race has spread from some region eastward of the Caucasus, and, in so far as the higher races of mankind are concerned, we have evidence that such may actually have been the case, but with respect to the black races we have no such evidence: indeed, all that we have goes to prove that this cannot have been the case with them. We cannot get over this fact, that the black races of mankind, although now separated from each other by wide and deep seas, nevertheless occupy one continuous area, and one of the most important communications which has been made to anthropology of late years was made by Professor Huxley when he was President of one of the parent societies of this Institute, who showed that in India and Africa these black races must formerly have been separated from the races on the north by seas which occupied the valleys of the Sahara and the Ganges. The countries now occupied by the various black races are also allied in their fauna, and there is evidence to show that those connections cannot have taken place by existing land, but by some continent which is now submerged. There is therefore every reason to suppose that the present separation both of man and animals in this region is owing to geological changes. But there is another race of which Lieutenant Cameron has told us something, viz., the Malay race. We learn from geologists that the channel

which separates Madagascar from Africa is one of great geological antiquity. We know that the fauna of Madagascar and of Africa are quite distinct; that the fauna of Madagascar is to a great extent akin to that of the Asiatic islands, which shows that in all probability some land connection must have existed in former times; we know also that the inhabitants of Madagascar are of Malay origin, and we are very much tempted to infer from this that in the case of both, the connection may also have been owing to some former land connection, and that their separation at the present time may have been attributable to subsidence. Against that however there is this to be said; the way in which we identify the race of Madagascar with the races of the Asiatic islands is by means of their language, and if this connection has been owing to the former existence of land between those countries, it would follow that language in the two regions must have retained its identity during long periods of geological change and geographical separation, which is contrary to all we know of the persistence of language, and of the length of time necessary for geological changes to be brought about. Whilst, then, there is evidence to show that the present distribution of the black races is owing to former geographical connection, that of the Malay race must be attributed to emigration, and I think it is in favour of this supposition that Mr. Cameron should now tell us that the Malay race has passed its ancient boundary of the Mozambique Channel and is found to exist in considerable numbers on the African continent. This, if it is borne out by subsequent inquiries, will be a new point in ethnological observation. With regard to culture, Mr. Cameron has told us that he has seen no evidence at all of stone implements in his journey; but if any traveller had walked across England during the Saxon period would he have discovered the existence of stone implements in this country? I think not, because they were buried beneath the soil, and it is only recently, by means of railway cuttings, agriculture, and engineering operations, that we discovered that a stone age existed in this country. We know that stone has been used in many parts of Africa, at the Cape, on the shores of the Bight of Benin, and in Egypt, and only at the last meeting of the Society we had a communication from Mr. Hyde Clarke which, if confirmed by subsequent inquiry, I regard as a most important one, by which he has shown that in other parts of Africa the former existence of stone implements may be traced in the language, the words for "axe," "stone," and "knife" being the same in many parts of Africa where the stone implements themselves have not yet been discovered. With respect to the iron-work of Africa, Mr. Cameron has also given us, by means of these diagrams, some very important information, for he has shown us that the mode of working iron is the same over the whole continent, and that the forms produced in iron are identical. If you look at that bell (fig. 1, plate 1), there cannot be the slightest doubt that it is the same bell as the one which I now exhibit, and which comes from Gaboon. Look at the form of this sword from the Gaboon

and that shown in fig. 2, from Mr. Cameron's illustrations. Certainly the same forms of sword might be found in different countries, but not of so peculiar a nature unless the form had been communicated. We have also this wooden drum from the Gaboon. If you compare that with fig. 3, plate 1, of Mr. Cameron's illustrations, there can be no doubt that these forms are so identical as to afford proof of connection. The wooden shield shown in fig. 4, plate 1, also appears to me the same as those used by the Kanemboo, which are described by Denham and Clapperton as being in the form of a Gothic arch, and illustrated in that work. I cannot doubt that this, like many other forms of tools and implements, has spread from a common source. In conclusion, I would only revert to what I said, in my remarks at the commencement of this meeting, that I hope when Lieutenant Cameron goes to Africa again, or his successors, the Anthropological Institute will be in a position to afford him or them more assistance than on the present occasion. It is quite right that geography should take the lead, and anthropology should follow afterwards, but anthropology cannot afford to be far behind. When once these races are brought into contact with European civilisation their habits change so rapidly that the opportunity is soon lost of observing them in their pristine condition. In Tasmania the aborigines have passed away without our obtaining any satisfactory information about them; in Polynesia and other places the same thing is going on. The English race has done more than any other to destroy all these races and obliterate their culture. As a nation we are bound to keep some scientific record of that which we destroy. The Anthropological Society of Paris has lately received 21,000 francs from the city of Paris to assist in prosecuting similar researches. We ought to do what we can, when sending out expeditions, to secure ample means for carrying on anthropological research. In this respect we are certainly behind the French. A French expedition has lately started from the west coast with the express object of solving anthropological problems. I think it is most important that we should form a strong Anthropological Society for the purpose of carrying out original anthropological research; and when the time comes when we shall be able to do this, we shall, I am sure, find no one into whose hands we could commit our investigation with more confidence than Lieutenant Cameron, to whom other branches of science are so much indebted, through his courage and perseverance, and whom we have now to thank for a most interesting and instructive communication.

The Duke of Argyll: As I am only a stranger here to-night, I feel it almost a liberty to make any observations. Perhaps I may be allowed to ask a question of very great interest, and that is, whether Lieutenant Cameron has made any observations of lake dwellings in Africa, especially as I see drawings of lake dwellings?

Mr. Charlesworth: There is one point respecting which I feel a great deal of curiosity—I refer to that remarkable instance of ornamentation, or perhaps we should claim to call it disfigurement,

of the human form, the case of the stone hook through the upper lip, which I must confess greatly puzzled me to understand. We are all aware that rings are worn through the lobe of the ear, through the cartilages of the nose, or transversely through the upper lip, but, if I understand it rightly, it was an aperture of an inch or 1½ inch in the upper lip and the stone put through that aperture so as to resemble a duck's bill. How was the stone held in position? We, as anthropologists, hold the name of Burton in the highest esteem, and therefore it is a matter of pride to the members of this Society to hear what Lieutenant Cameron tells us, that in those portions of Africa through which he wandered where Burton had been, he found nothing to contradict If I may ask one more question, it would be this: In going through this vast tract, how was the matter of interpretation managed? Did he from time to time get a fresh batch of interpreters, or did the same carry him all the way across the Continent of Africa?

Mr. CHARLES HAMILTON: Having travelled a good deal in Angola, I am delighted to hear the way in which Lieutenant Cameron has spoken of the slave trade. When our learned ex-President, Professor Busk, was in the chair, I had one evening a paper read for me in which I spoke of the atrocities of the Portuguese and traders, and I am only too delighted to find a man who comes forward and tells me that the Portuguese are cruel slave traders. There are two great slaveholders, the Khedive of Egypt and the King of Portugal, but by great plausibility and knowledge of language these things are perpetrated. I saw in the interior of the country—not within the reach of our consuls, because a more glorious consul than Consul Hartley could not be, a more kind consul we could not have—I saw the most atrocious slave trading going on, and so strong were my remarks on it that publishers in London were afraid to publish my book. It is a very great anthropological subject, the subject of cruelty to our fellow beings, therefore I hope our learned President will pardon me for intruding.

Sir JOHN LUBBOCK: The paper raises a great number of questions. I should like to ask Lieutenant Cameron, in replying, to give us a little information as to the different forms of arrow-heads. It is of very great interest. We can hardly doubt, of course, that those different shapes have a meaning; either they imply differences of race or differences of purpose. In that case we should all be glad of some information on the subject. As regards the use of stone implements, I confirm what you have stated; the use of stone was no doubt forgotten in that district of Africa. I have no doubt that the central districts of Africa must have passed through a stone period. I hoped he would not quite commit himself as to the recentness of the objects which Mr. Dixon found in the Pyramid. I quite believe that the round weight was probably not used as a measure, I am disposed to think it was an ancient weight. It was found in that part of the Pyramid which would seem to imply it was coeval to that structure. In these times of depression of the

iron trade we are all glad to hear of one place in the world where that trade is in so flourishing a condition.

Consul HARTLEY: I was five years in the district from which Lieutenant Cameron has arrived. I left some years ago. I can only say that everything Lieutenant Cameron has stated is in accordance with my experience in a long residence in that country. Since that time there has been a consul who is present here. He resided there for three years. I have travelled a great deal through Africa, from the Cape to the Portuguese position, and partly through the country Lieutenant Cameron passed through. I have never seen anything different from what he stated. Those spear-heads I found in different parts of the interior, and I suppose from latitude 22 degrees upwards as far as the Portuguese position, I found the same thing.

Consul HOPKINS: I hardly expected to have to say anything. What Lieutenant Cameron has stated about the manners and peculiarities of Africa may seem strange to English ears: believe me if we were to tell half the tales of what we do see it would not be believed. Mr. Hamilton will bear me out in that. I am happy to say, with reference to what Mr. Hamilton has said, that the 30th April of this present year was the last day on which slavery was allowed to exist in Portugal or its colonies. I left Angola on the 30th of March, and a month after that day every man was free. What the result may be we do not know, but we anticipate great good to the Africans.

Lieutenant CAMERON: The only place where I saw lake dwellings in any number was on that lake—Lake Mohrya. The dwellings are built on piles on a platform sufficiently solid to allow people to pound corn upon them. Their canoes are kept between piles, on large raised platforms. The principal reason of their dwelling out like that is to protect them from the attacks of the chief of Urua. One other place was a sort of fishing village close to the Tanganyika, but those were simply for being ready for going out fishing at night. They had another village behind, higher up. The next question was about the lip-stones. The hole is formed gradually until it gets larger; the stone is increased in size from time to time, and the lip gradually gets larger. The same sort of thing is seen in the Crystal Palace. In a representation of one of the tribes there, a stone is in the lower lip, which is far more inconvenient. With respect to interpretation: all the region south of the Congo is one vast family of languages, of which the grammar is the same. The Arabs served me as interpreters. One of my men talked Portuguese. In fact the one language of Kisuahili, which I understood, carried me through from east to west. With regard to the different forms of arrow-heads, I cannot pick out exactly the localities of some of the forms. They nearly all seem to be made at the sweet will and fancy of the man who made them. They all came out of a district fifty or sixty miles wide. I don't know their different uses. Some of the broad ones are for shooting birds, the larger ones for war.

The President: I am very much in favour of Mr. Cameron's opinion, that they are shapes of pure fancy, and that, like other forms of weapons produced by savages in other parts of the world, they arise from a love of variety on the part of the fabricator, rather than from any pre-conceived design of utility. This is shown by putting a number of the forms together according to their affinities, as has been done by Capt. Dillon in arranging the diagram of them for Lieut. Cameron. By this means it is shown that the differences are produced by the development of some parts and the suppression of others, whilst some of the forms in this case appear to be made in imitation of the axe blades used in this region. No doubt some of the forms arising in this way, when found useful for any special purpose, would be retained, some in one place and some in another. I think, with Sir John Lubbock, that the subject is of interest as illustrating the working of the minds of savages in relation to such matters. In drawing to a close the proceedings of the evening, I have only to add, that, unfortunately, the means we have of doing honour to distinguished travellers like Mr. Cameron are not very great; we have no gold medal, or other such distinction to confer on him, but we have done our best to mark our sense of the services which he has rendered to anthropological science, by electing him an honorary member of the Institute.

The following paper was taken as read:—

On the Scaphoid Skull *of a* Pole. By Dr. Isidor Kopernicki, of Cracow.

The Anatomical Museum of the University of Cracow has possessed for fifteen years a very remarkable scaphoid skull, about which Mr. Kozubowski, formerly Professor of Anatomy, now *Emeritus*, has been able to give me only the following account:—That the cranium belonged to an adult man, a carpenter, born at Cracow, and that the deformation of his head dated from infancy, during which he suffered for a long time from an extensive eruption upon the hairy scalp. The profile of this cranium is most characteristic. It greatly resembles that of the scaphoid skull of the Biegnese boy described by Professor Calori,* and also that of the Australian skull represented by Dr. Barnard Davis.† Seen *on this side* the calvarium has the form of a long ovoid a little bent downwards upon its axis. Its frontal extremity is slightly truncated, whilst its opposite extremity is considerably acuminated. This calvarium,

* "Sopra un Cranio Scafoideo. Lettera all' ill°." Dr. J. Bernardo Davis. Bologna, 1871, Tav. I.

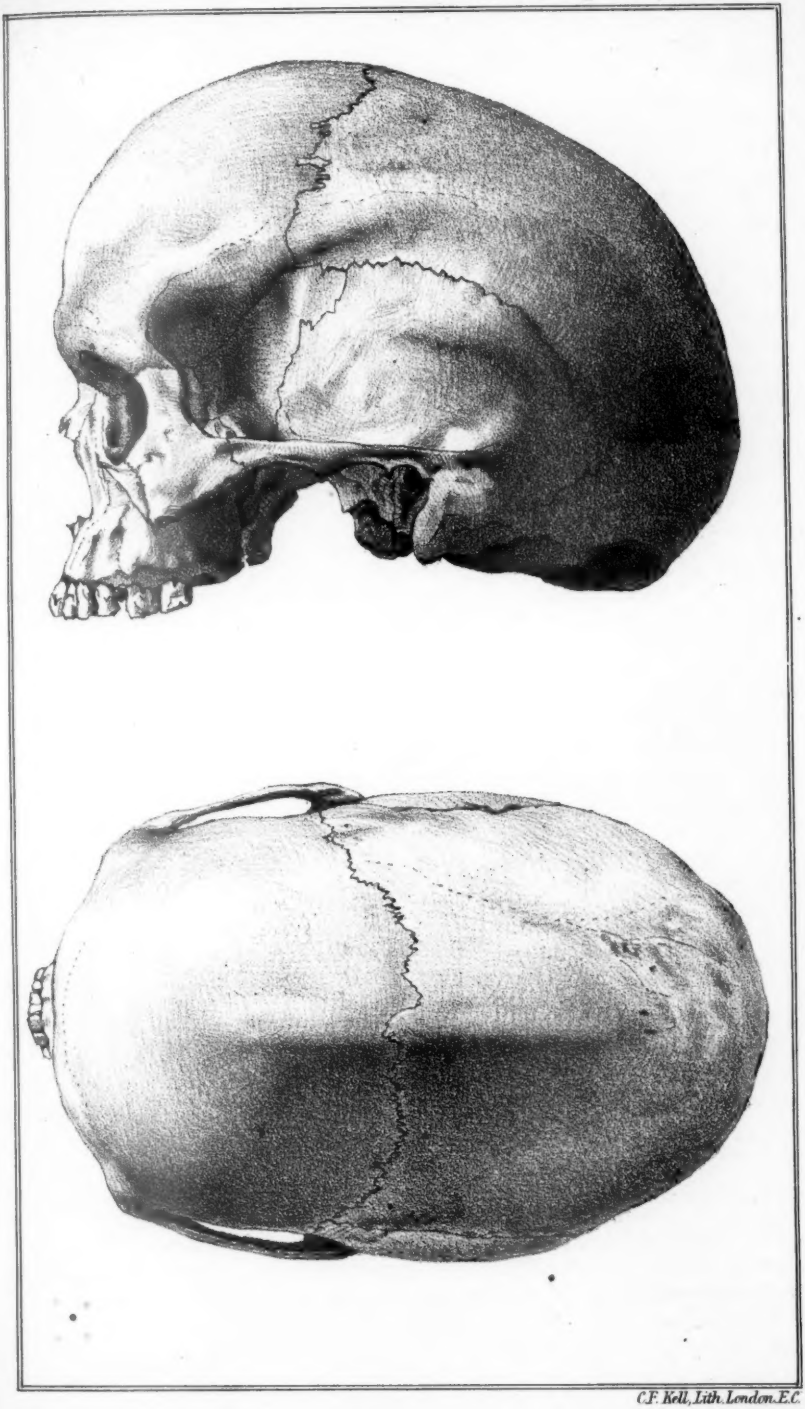
† "On Synostotic Crania among Aboriginal Races of Man." Haarlem, 1868. Pl. I.

which is very oblique from before backwards, reposes at its anterior portion upon the facial skeleton, so little developed and so shortened that the superior maxillary teeth are found on a level, a little more elevated than that of the surface of the *receptaculum cerebelli.*

To set out from the glabella, which advances considerably above the face, the forehead rises vertically in an arc full and perfectly spherical. Having arrived at from two to three centimetres before the coronal suture, this arc bends somewhat suddenly downwards and backwards to form the bregmatic line, which is long, oblique, and feebly convex, and is then confounded with that of the very prominent occiput, bent downwards. The contour of the *receptaculum cerebelli* is very long, flattened, and slightly oblique from behind forwards.

The facial skeleton, seen on the side, is delicate and very small in proportion to the calvarium. The superior maxillary is planted vertically beneath the sinciput, and its alveolar process alone projects slightly obliquely. *Seen from above* (*norma verticalis*) this cranium presents a very elongated oval, slightly asymmetrical. This asymmetry is caused by the more considerable convexity of the right temporal. The alisphenoids are narrower than ordinary, and very much sunk, which augments the depth of the temporal fossæ, from which fact the contour of the skull, when seen from above, appears as if it were contracted in this region. In our orthographic figure of this contour the frontal extremity is more obtuse than the occipital, and allows the incisor teeth, with their alveoli, to be seen before. Yet these are not perceived *de visu* in examining the cranium from above; the general form and the contour of this cranium then appears to us perfectly similar to that of the scaphoid skull of the Biegnèse, with this only difference, that in our cranium the zygomatic arches project a little beyond the sides of the outline.

Seen in the front (*N. frontalis*), and still more *seen from behind* (*N. occipitalis*), our cranium presents in a high degree the characteristic ogival contour. The forehead is straight and beautifully prominent; the occiput, on the contrary, is pointed and depressed downwards. Under whatever aspect, we do not perceive the least trace of the parietal bosses. The most striking character in this cranium, which is common to all the scaphoid skulls, is its extreme narrowness, accompanied with enormous elongation, and the acute *keeled* form of the cranial vault. The keel commences immediately behind the middle of the coronal suture, and forming a ridge more and more acute, extends backwards all along the entirely obliterated sagittal suture, and is prolonged over the summit of the occipital scale. It disappears



C.F. Kell, Lith. London. E.C.

SCAPHOID SKULL OF A POLE.

C.F. Kell, Lith. London. E.C.

SCAPHOID SKULL OF A POLE.

anteriorly on the very convex surface of the frontal, on the sides it passes immediately over the very inclined surfaces of the parietals, and behind it forms by degrees into the prominence of the occipital boss.

The temporal semicircular lines ascend very high towards the summit of the cranial vault. They are removed diametrically from one another to the extent of 94 mm., $3\frac{3}{4}$ inches, at the point at which they cross the coronal suture they approach more and more, so that towards the middle of the parietal region the distance between these two lines is reduced to 51 mm., 2.1 inches, and before the lambdoid suture it is only 36 mm., $1\frac{1}{2}$ inch.

These temporal lines divide the surface of the cranial box into three distinct areas, the two lateral occupied by the attachments of the temporal muscles, and the median one limited by these last. The surface of the lateral areas is altogether smooth, slightly grooved by the ramifications of the deep temporal artery, and by striæ due to muscular attachments. The surface of the median area, on the contrary, has a more or less rugous aspect. This rugosity, very slight upon the frontal bone and the anterior third of the parietals, increases in extent and intensity, and attains its maximum in the posterior third of the median area. It is owing to a multitude of very small hyperostotic exuberant buds scattered over the osseous surface. In the intervals of these buds is perceived a multitude of little mouths, by which the arterioles of the periosteum penetrated into the bony texture. These mouths or pores being more abundant and larger in the posterior third of the median area, give the surface a quasi-spongy aspect. The *foramina parietalia* are not met with in their usual places—that of the right side is marked by a little alveole hollowed in the osseous substance not far from the lambdoidal margin of the parietal.

In examining the surface of this median area more attentively by means of the lens, we remark upon the median line an osseous ray perfectly smooth, 3 to 5 mm. wide, and prominent in a sort of ridge formed by the very compact osseous tissue, in which the arterial canaliculæ are not to be perceived. Afterwards on the two sides of this ridge, immediately near it, we perceive a multitude of very small orifices, which are not circular but always elliptical, the longitudinal axis of which, being always directed from within outwards, which proves that the arterioles which penetrated them had the same direction from the median line towards the centres of the parietal bones. Along the median ridge we nevertheless perceive two places where its smooth surface is divided by a little longitudinal furrow, scattered with small pores perfectly circular, by

which, consequently, arterioles penetrated vertically, which proves that the sagittal suture primarily existed in its full function.

In brief, having analysed all these details, we arrive at the conviction that the parietal bones in our scaphoid cranium were developed in a legitimate manner, beginning by two distinct centres of ossification for each bone, but that their ossification along the sagittal suture and over that suture itself, was accomplished more vigorously and more rapidly than in normal crania. The temporal semicircular lines themselves do not present anything particular in their anterior portion, but on arriving at the middle of the parietal bones, they are transformed gradually into two broad, rough lines, very prominent above the neighbouring surface of the parietals, and which have all the characters of an hyperostosis produced by a chronic periostosis. Between these last projections and the median ridge there exist two slight longitudinal impressions of the cranial surface, which emerge gradually before and behind, to lose themselves in the rugous surface which has been mentioned above. The state of the sutures in this cranium may be thus described: the *coronal* is only obliterated to the extent of a centimetre, setting out from the alisphenoids, of which it touches the upper edge nearly in the middle; in the rest of its course this suture is perfectly free, and richly dentelated to its centre. The *sagittal* suture is, as has been described, completely obliterated, and replaced by a hyperostotic ridge. The *lambdoidal* suture is obliterated at the top of the lambda to an extent of four centimetres; further on, up to its junction with the mastoid, it is entirely free. The *scaly* suture of the temporals is open; the *mastoid* on each side is, on the contrary, completely obliterated in its junctions with the parietal and occipital bones. The sutures of the *alisphenoids* and the *intra-orbitary* sutures are open.

Lastly, by examining the interior of the cranial cavity we find that the obliteration of certain sutures was there more energetic and more prompt than on the exterior. Thus there is no trace of the coronal suture, whilst the lambdoid is open in all its extent down to the mastoids.

As to what concerns the different osteological details of this cranium it may be remarked: the moderate frontal sinuses, the wide forehead, straight and very prominent, the deep temporal fossæ, the long and very convex scales of the temporals, especially the right, the mastoid processes broad at their bases are short and pointed, the venous foramina, mastoid and condyloid, of the right side are enormous, and those of the left side likewise are tolerably large; the occipital tuberosity, its

semicircular lines, and the occipital crest, are very prominent, the occipital foramen is enormous, and of an oval form.

The facial skeleton, of a very slender and fine conformation, offers the following details: the orbits are moderately wide, quadrangular, horizontal, are separated by a pretty broad partition; the root of the nose is sufficiently deeply depressed, the nasal bones are short and completely grown together in their upper half, the nasal aperture is wide, heart-shaped, with the inferior notch blunted, the funnel-shaped openings into the nostrils, on the contrary, are very small; the slightly developed cheek-bones are depressed backwards; the zygomatic arches are long, fine, and scarcely bent. The alveolar process projects forwards, its border is long and elliptical; the teeth are white and sound; the lower jaw wanting. The mensuration of the cranium is given in the following figures in millimetres; and in order to facilitate comparison, the analogous measures of other scaphoid skulls, of the Biegnese (B) described by Prof. Calori, and of the Australian (A) described by Dr. Barnard Davis.

A. *Calvarium.*

Internal capacity		1350 c.c.	(B 1646, A 1450)
Length		203 mm.	(B 208, A 210)
Naso-basilary line		93	(B 93)
Width.	Inferior frontal	104	(B 97)
	Maximum	107	(A 112)
	Bitemporal	113	(B 116)
	Bisquamous	119	(at the middle of the suture)
	Maximum	128	(B 126, A 121)
	Occipital	113	(B 118, A 107)
	Bimastoid	101	(B 108)
Height		130	(B 139, A 134)
Auro-frontal (Carus)		132	(A 130)
Occipital (Carus)		108	(A 107)

Oblique diameters.—From the anterior edge of the occipital foramen to

glabella	107
frontal boss	122
coronal suture	130
lambdoid	114
occipital boss	108
point of nasals	91
nasal spine	84
alveolus	87

Vertical arch.			
Frontal	150	(B 142,	A 143)
Parietal	155	(B 158,	A 149)
Occipital superior	55	(B 773,	A 133)
Occipital inferior	52	(B 50,	
Total	412	(B 427	A 423)
Circumference.			
Preauricular	290		
Postauricular	240		
Total	530	(B 554, A 553)	
Transverse arch	260	(B 309, A 310)	
Occipital	220		
Occipital foramen.			
Length	38	(B 38)	
Breadth	31	(B 32)	
Width. B. Face.			
Biorbital	101		
Zygomatic	131	(B 121, A 130)	
Bimalar	108		
Nose.			
Length of nasals	20		
Nasal opening { length,	32		
Nasal opening { breadth,	27		
Orbits.			
Height	31	(B 34)	
Width	31	(B 36)	
Width of partition	22	(B 27)	
Superior Maxillary.			
Total height	60	(B 56)	
Height of alveolus	18		
Greatest width	95		
Width of body	65		
Do. at alveolar border	61		
Palate, length	45		
Do. width	34		

The analysis of these figures teaches us what follows: notwithstanding the extraordinary elongation of this cranium, caused by its extreme flatness on the sides, it has gained nothing either in volume or capacity, since its horizontal circumference measures 530 mm., and its internal capacity is 1350 c.c., measures which range it among very moderately developed skulls. In comparing these measures with those of Polish crania, measured by myself and by Dr. Weisbach, we find that our sca-

phocephalic skull exceeds only by 19 mm. in circumference, and yields by 167 c.c. in capacity to the normal Polish cranium.

The essential point in the particular conformation of our skull is evidently seated in its extraordinary elongation at the expense of its width, and in the numerous proportional deviations which result from it. Thus with 203 mm. in length of the skull, its greatest breadth only measures 128 mm., which gives it a *cephalic index*=·63, that is to say, a little greater than the scaphoid cranium of the Biegnese (·61) and more than a fourth below that of the normal Polish skull. As to what concerns the other breadth-diameters, in particular they are the occipital and the bimastoid, which yield 11 to 8 mm. to those of the normal Polish skull, whilst the frontal and temporal diameters are, on the contray, from 8 to 2 mm. greater; all these results in the scaphoid cranium are perfectly in agreement with the precocious obliteration of the sagittal and mastoid sutures, and with the integrity of the coronal and alisphenoid sutures.

In comparing the circumferences of the pre- and post-auricular parts of this cranium, we find that the first exceeds the last (290 mm. : 240 mm.=1·2 : 1) much more than in the mean Polish skull (1·03 : 1). This predominance of the pre-auricular region is confirmed by comparing the auro-frontal (132 mm.) and the auro-occipital (108 mm.) diameters, where the relation is almost identical with that observed by Calori in the scaphoid cranium of the Biegnese. The comparison of the measures of the three constituent portions of the cranial vault teaches: that the extreme elongation of our scaphoid skull is owing principally to the development of the parietal bones in length. For whilst in normal Polish skulls the parietal arch is=0·33 of the whole vertical arch, in our scaphoid cranium this relation=0·376, the same for the chord in the first is=0·62 of the antero-posterior diameters were, being=152 mm. it is=0·74[8] of it.

Taking into consideration the two following circumstances: 1. That the maximum breadth of our scaphoid skull is found below the squamous sutures, nearly in the centres of the squamæ of the temporals, whilst in normal crania it sometimes falls in the middle of these sutures, sometimes a little higher upon the parietals. 2. That the relation of the inferior frontal diameter (=0·81) and the occipital (=0·88), in proportion to the diameter of greatest breadth has only sunk but very little in comparison with what takes place in normal Polish skulls (frontal=0·67, occipital=0·86).

This proves that in consequence of the precocious oblite-

which, consequently, arterioles penetrated vertically, which proves that the sagittal suture primarily existed in its full function.

In brief, having analysed all these details, we arrive at the conviction that the parietal bones in our scaphoid cranium were developed in a legitimate manner, beginning by two distinct centres of ossification for each bone, but that their ossification along the sagittal suture and over that suture itself, was accomplished more vigorously and more rapidly than in normal crania. The temporal semicircular lines themselves do not present anything particular in their anterior portion, but on arriving at the middle of the parietal bones, they are transformed gradually into two broad, rough lines, very prominent above the neighbouring surface of the parietals, and which have all the characters of an hyperostosis produced by a chronic periostosis. Between these last projections and the median ridge there exist two slight longitudinal impressions of the cranial surface, which emerge gradually before and behind, to lose themselves in the rugous surface which has been mentioned above. The state of the sutures in this cranium may be thus described: the *coronal* is only obliterated to the extent of a centimetre, setting out from the alisphenoids, of which it touches the upper edge nearly in the middle; in the rest of its course this suture is perfectly free, and richly dentelated to its centre. The *sagittal* suture is, as has been described, completely obliterated, and replaced by a hyperostotic ridge. The *lambdoidal* suture is obliterated at the top of the lambda to an extent of four centimetres; further on, up to its junction with the mastoid, it is entirely free. The *scaly* suture of the temporals is open; the *mastoid* on each side is, on the contrary, completely obliterated in its junctions with the parietal and occipital bones. The sutures of the *alisphenoids* and the *intra-orbitary* sutures are open.

Lastly, by examining the interior of the cranial cavity we find that the obliteration of certain sutures was there more energetic and more prompt than on the exterior. Thus there is no trace of the coronal suture, whilst the lambdoid is open in all its extent down to the mastoids.

As to what concerns the different osteological details of this cranium it may be remarked: the moderate frontal sinuses, the wide forehead, straight and very prominent, the deep temporal fossæ, the long and very convex scales of the temporals, especially the right, the mastoid processes broad at their bases are short and pointed, the venous foramina, mastoid and condyloid, of the right side are enormous, and those of the left side likewise are tolerably large; the occipital tuberosity, its

ration of the sagittal suture, in proportion as the cranium is elongated forwards and backwards, its contraction is limited pricipally to the superior part of the cranial vault, whilst the breadth of the skull, nearer to the base, remains nearly stationary.

As to what concerns the base of the cranium, taking into consideration the very small absolute length (93 mm.), as well as the remarkable narrowness of the alisphenoids, we have every reason to suppose that its basilary sutures would have been closed before the longitudinal development of the vault has been completed. And this has brought about the shortening of the base itself, the approach of the posterior nasal spine to the anterior edge of the *foramen magnum*, and lastly, the curvature of the cranial vault downwards.

The study of the *craniographical profile* makes us acquainted with many instructive details of the singular conformation of scaphoid skulls. Thus: the basilary line makes an angle extremely open with the plane of the occipital foramen (177°), whilst in normal crania in general, it very rarely attains to 170°, and the maximum of its opening (found in a Russian skull from Penza) known to us is 174°.

The relative position of the occipital foramen, *index foram. magni*, in our scaphoid skull, is=0·50, that is to say, that it is the maximum found by Professor J. Wyman in crania of the white race, and in those of the human race in general. The frontal segment being a little more inclined to the basilary line (75°), that is recompensed by the strong convexity of the frontal curve, the index of which (0·27) surpasses by 0·05 that of normal crania in general. The extraordinarily long parietal segment (152 mm.) and also flat (index of its convexity= 0·12!), forms with the preceding nearly a right angle, which, as far as I know, is never observed in normal crania. The same case exists for the degree of the inclination of this segment to the occipital, which is=72°, that is to say, forming an angle of 10° less open than the smallest observed by us upon a Lapp skull (82°).

Lastly, as to the facial skeleton of this scaphoid cranium, we have only two prominent characters which distinguish it *de visu;* these are the slenderness of the face and its orthognathism. But it is the first only which distinguishes it from the normal Polish skull, for the height of its superior maxillary being =60 mm., that is to say, 10 mm. smaller than that of normal Polish skulls, only makes 0·29 of the length of the cranium, whilst in the last it is=0·39. And as to the opening of the facial angle of Cowper (=87°) it exceeds rather considerably that of the normal Polish skull (=83°).

After all that has been reported concerning the conformation of our scaphoid skull, we may range it among the best specimens known of this kind of crania. Far from attaining to the extraordinary degree of deformation of the celebrated skull of the Stettin weaver described by Schade, and much better represented by Dr. Barnard Davis ("Synostotic Crania among Aboriginal Races," plates ix. to xi.), it much more resembles the scaphoid skull of the Australian, of the tribe of the McLeay river, described by the last author (*ibid.*, plates i., iii.), and still more the scaphoid skull of the Biegnese, described by Prof. Calori (*op. cit.* Tav. i.—iv.). It is nevertheless distinguished from the Australian skull by its more moderate lateral compression, by the almost complete absence of the *foramina parietalia*, by the persistence of the squamous sutures of the temporals, and especially by the delicacy of its facial skeleton. The characters which distinguish it from the Biegnese cranium are the prominence of the incisor teeth, and of the zygomatic arches outside the contour of the skull in the *N. verticalis*, which nevertheless are hidden by sinking the frontal end of the skull a little, the integrity of the lambdoid suture in the interior of the cranium, the great extent of the area of the temporal muscle, and lastly, the considerable development of all the external prominences of the occipital—crest, tuberosity, and semicircular ridges. Apart from these secondary differences, the essential in the conformation of our scaphoid skull agrees perfectly with that of the cited crania, and confirms the capital facts concerning the origin and the anatomical conditions of scaphocephaly.

1. That this deformation is owing to the synostosis of the *two* parietals, distinct in their origin,* and that nothing, on the contrary, authorises the admission of its supposed origin from a single medium centre of ossification common to the two bones.

* In support of this opinion I ought to state a very eloquent fact which has come to my knowledge very recently, thanks to the obliging indication of Professor Kozubowski. It relates to a *microcephalic* cranium of a fœtus at the full period found in the Anatomical Museum, which was collected by the late Professor Bierkowski. Very remarkable under many other respects (absence of the frontal suture, the fontanelles, of inter-maxillary bones, and of nasal bones), this little cranium is distinguished by the *scaphoid*, or, rather, *cuneiform* form of its calvarium. This form is owing to the very precocious obliteration of the posterior half of the sagittal suture, and of all the right side of the coronal suture. Notwithstanding the complete absence of the parietal bosses, the persistence of the sagittal suture in all the anterior half of the *carina*, the radiated aspect of the internal surface of the parietal bones, with two centres of these rays, distinct for each bone, does not leave any doubt of the primordial existence of two parietals with their distinct centres of ossification.

2. That the lateral compression of the cranial vault caused by this synostosis, limiting itself in preference to the superior and middle of this vault, is compensated for by the considerable development of the sinciput forwards and across, as well as of the occiput backwards and downwards.

3. That the more precocious ossification of the basilary sutures, by preventing the development in length of the vertebral centres of the cranial segments, and by augmenting the degree of their mutual inclination, plays a very important part in the production of scaphocephalism, and this is by bending downwards the occipital segment, after the mechanism analogous to that which was demonstrated by Prof. Ecker for normal crania of different races ("Archiv für Anthropologie," T. iv., 1871, p. 301, *et passim*. *Ueber die Krümmung des Schädelrohres*).

a.

b.

c.

d.

Louis A. Lucas.

C.F. Kell, Lith. London. E.C.

NATIVES OF SUAKIN, AFRICA.

ANTHROPOLOGICAL MISCELLANEA.

The following is an extract from a letter received by the President from Mr. Louis Lucas, together with the accompanying short vocabulary of Bishareen words, and some sketches given on plate. No Bishareen vocabulary, it is believed, has been yet printed:—

KHARTOOM, 11th March, 1876.

DEAR COLONEL FOX,—A four months' delay in Cairo, waiting for my ammunition, made my arrival in Khartoom far later than I had originally intended. I hear from Colonel Gordon that he is unable to receive me at Judo, owing to the small number of porters at his disposal—being insufficient to comply with the wants of his own soldiers.

I shall now enter Central Africa by the Bahr el Gazelle district, following Dr. Schweinfurth's route to Munza's residence, and from there continue southerly until, at latitude 3° S., I shall strike south-westerly. By these means I shall hope somewhere to cross the waters of the Congo. If able, I shall follow it to its source, and retrace my steps to its mouth.

The Anthropological Queries you recommended to me I, already, have found to be of great value, and I sincerely hope to put them to some good use. It is scarcely worth while giving you any of my notes on anthropology at present, as the Bishareens and Hadendoas are so well known. Their modes of life are very different, likewise their customs. I also enclose a few rough sketches, traced from my sketchbook. It is worthy of remark that a Bishareen of the desert speaks always of a resident in Souakin as a Souakinese, and never as a Bishareen; although the life of the latter is purely nomadic; it seems curious that his town brother should be so distinguished. It is also to be noted in connection with my sketch of a Souakinese, that when I asked my subject to remain quiet and in an attitude of ease, he at once raised his left leg and rested it on the front part of the right knee. I never saw another of his tribe do the same, although I was among them three weeks. This is a favourite attitude of repose among some of the negro races of the southern parts of the White Nile—for example, the Shillooks. I believe the man had never been beyond Khartoom. Among the Souakinese especial pride is taken in the adornment of the hair. It is plastered with grease, and from frequent anointments, without the use of the comb or brush, it assumes a most uncouth, matted

appearance; or, as is often the case, it is dyed a reddish brown colour with henna, or is made white by the application of numerous dabs of white butter, or coloured yellow with a dye unknown to me. I have given specimens, in my sketches, of the above, besides one who kept his hair in an unkempt state. This style is more uncommon. The boys rarely, if ever, alter the natural colour, but shave the head in every conceivable manner. Usually a lock is left on one side or another, or on the scalp. The girls and women invariably wear it in thin, short plaits, parted down the centre, and pressed tightly down by oil, grease, and hand.

I was unable to use my photographic apparatus before my arrival here. Since then I have procured three or four views—men and country—which I think will be of interest, they are the first ever taken in Khartoom. My instruments are all, I am glad to say, in good working order. Before I leave Khartoom I shall send to the Royal Geographical Society the meteorological observations taken by my servant three times a day for the past month, since my stay here.

I shall ever be grateful to Dr. Hooker for having found me so valuable a servant as Arthur Freeman. He was under Dr. Hooker at Kew for two or three years, and will be the botanical collector and registrar of the meteorological instruments during our travels.

It may interest you to have a copy of some notes made at Jedda, relative to information I received from a captain of a British merchant vessel, then in harbour, who had brought pilgrims from the Malay Archipelago for Mecca. I have every reason to believe my informant, and the British consul at Jedda, at whose house I met him, tells me he is well known to him, and is a reliable man. These notes refer to four men with tails.

Captain T. Smith informs me he brought in his steamship, "Eastern Isle," four men with tails, two from Borneo and two from Sumatra. One only was made to undergo an examination by him. "The tail was about fourteen inches long, slightly covered with hair about a quarter to half an inch long. He did not observe if the man possessed any muscular control over it. The man seemed ashamed of his malformation. It was worn bound up. I understand from Captain Smith doubled back, so to say, on the spinal column. All the men were very hairy about the chest, though not particularly so about the face. One only wore whiskers, the others were barefaced. They were all well made and were about 5 feet 4 inches in height. They appeared to him to be intelligent, and were fond of using their tongues and being in company, and apparently had no impediment in their speech. The hallux was not observed to be opposable, and there was no noticeable disproportion of the humerus, radius, and ulna, with the femur, tibia, and fibula."

This is all I could obtain concerning these men. I should have seen them myself if they had not already left for Mecca, and would not return for a fortnight. I do not remember having heard of any human being having been seen in England with a well-developed caudal region.

COMPARISON OF BISHAREEN WORDS.

English.	*Bishareen.*	*English.*	*Bishareen.*
Father	Bábu	Sheep's Meat	To'órshé
Mother	Dātoo	Dog	Wayas
Brother	Lanook	Cat	Town
Sister	Tutwatook	Earth	Oash
Grandmother	Hotōk	Sun	Tōwee
Grandfather	Hobōk	Moon	Totree
Aunt	Deratōk	Star	Yiook
Uncle	Durōk	Tree	Indee
Male Cousin	Orōk	Bush	Oseeam
Female Cousin	To'oto	Sand	Debba
One	Gal	Water	Aeer
Two	Maloo	Sea	Omheraghermee
Three	Maiee	Sheep	Toka
Four	Ferdik	Cow	Os'ha
Five	Ai	Camel	Oka
Six	Sarger	Head	Ogerma
Seven	Sarum	Body	Otak
Eight	Sermai	Eye	Agwat
Nine	Zerdik	Nose	Agenif
Ten	Tarme	Mouth	Oyuf
Eleven	Tamnagwee	Chin	Sherna
Twelve	Tamnamal	Hand	Wi
Thirteen	Tamnanaiee	Leg	Rugada
Fourteen	Tamnaferdik	Foot	Tadembó
Nineteen	Tamnazerdik	Arm	Ooŏy
Twenty	Targou	Cloth (over body)	Walak
Twenty-one	Tagwag'gwal	Hair	Cham
Thirty	Maitoun	Salt	Mĕle
Forty	Ferdiktoun	Mountain	Ōrba
Fifty	Aitoun	Hill	Wōō'oŭ
Sixty	Saijertoun	River	Mala
One Hundred	Shilo	Box	Sandook
One Thousand	Taminsh	I	Anib
Ten Thousand	Not known	You (thou)	Barook
Bread	Hardee	He	Bareu
Meat	To'órshé	We	Aenda
Camel Meat	,,	You	Hod'hi
Cow's Meat	,,	They	Hinhin

In the foregoing I have given the following sounds to the vowels:—

a (unaccented), as in banner.
ā, as in way.
á, as in father.
ăi or ăy, as the "y" in fly.
ō, as in go.
ó, as the "au" in taught.
ee, as long "e" as in bee.
é, as the "i" in sit.

An "'" between two letters signifies there is a slight interval or pause.
The "h" is very slightly aspirated.
Uncle and Aunt are Durok and Deratok, be they either sister or brother of father or mother.
The language, to the ear, sounds exceedingly hard. The words are disconnected and cold.

N.B.—I am uncertain if the termination of the eight words after Mother be with or without a "k"; the men would sometimes say with and sometimes without. In any case if there be one, it is but very slight. LOUIS A. LUCAS.

Professor Sayce remarks, with regard to the vocabulary, that the Bishareen word for salt has been clearly borrowed from the Arabs, probably along with the article itself.

As for the Bishareen numerals from 6 to 9, they are plainly compounded of the numerals 5+1 (*sar-zer*), 6+2 (*sar-u-m*[*uloo*]), 6+4 (*ser-mai*[*ee*]), and 6+4 (*zerdik=ser+ferdik*). It would appear from this that *ser* meant "5;" perhaps it was an old word for "hand" or "thumb." The word given for "5," *ai*, may be the same as the word given for "hand," *wi*.

DESCRIPTION OF PLATE VIII.

A native of Suakin. His hair is matted on top, straight at the sides, and coloured with henna.

a. Man's head, the hair on top frizzly and whitened, the sides twisted into rope-like curls, and plastered with butter.

b. Man's head, frizzled, unparted and untouched.

c. Boy's head, knobs naturally frizzled.

d. Girl's head, in stiff plaits about ¼-inch wide, 5 or 6 inches long, and well greased.

The males always wear, passed through the hair at the back of the head, a stick for scratching, as shown in the sketches.

A QUESTION ON ASSIMILATION AND ON THE EYES OF MONGOLIANS.

IT has been remarked that the eyes of missionaries and travellers long resident in China, as well as their cast of countenance and expression, assimilates in some extent to the Chinese. It may also be observed that, whereas the Jews in each country differ in their expression and cast of countenance, so in Russia some of the Polish Jews, without intermixture of blood, show a conformity of appearance with Mongolians, far different from their western brethren. I have lately noticed that Chinese and Japanese residents and students in London exhibit a much less marked Mongolian expression, and that the eyes are less characteristic.

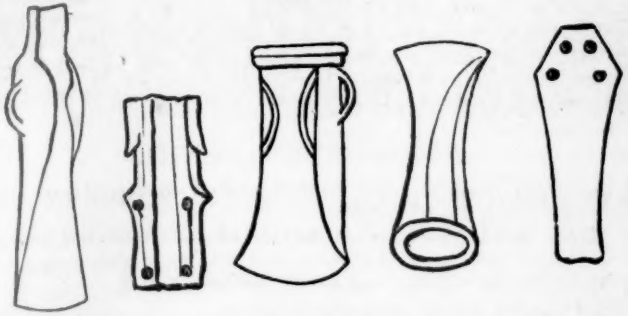
This is a subject worthy of enquiry, and it is therefore offered as a question for investigation by members of the Institute. There is this to be taken into account, that a child will acquire squinting and obliquity of vision from squinting nurses and associates. It is therefore possible for this feature of the eye to be modified by external associations and impressions. The colour of the iris can also be affected, as is well enough seen in the streets in the cold and snowy days of winter. It is possible that the ears may be modified by adaptation to the harsher or softer voices of nations and associates. HYDE CLARKE.

BRONZE CELTS FOUND NEAR CUMBERLOW, BALDOCK, HERTS.

(*Communicated by* E. F. Bally, Esq.)

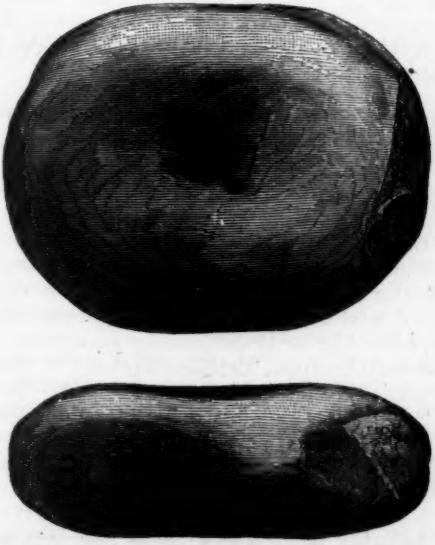
The celts here shown are some of about forty which were lately (1876) found by some drainers working for Mr. Fossey of Cumberlow-green, Baldock, Herts. They were found in a neatly-made,

Fig. 1.



well-shaped hole about 2 feet in diameter, and at about 2½ feet below the surface, in stiff, red loam. They lay at the bottom of

Fig. 2.



the hole with about 50 lbs. of metal, all of the same description, partially fused. They consist of five or six different shapes, and

there were reports of portions of pots having been found near, though none were seen. No other objects are known to have been found near this spot, close to which Ickman's-hill, on the old Roman road, is situated. Black earth has been found in the neighbourhood, which has led to the belief that a furnace existed close at hand. The bronzes, many of which are beautifully made, whilst others are much battered, are now in the possession of Adolphus Meetlike, Esq., of Julian's Park, Rushden, Huntingford, Herts, who is landlord, and lord of the manor.

The figure here shown (Fig. 2) is that of a wallong, or stone for grinding nardoo seed on the yowwi, a large flat stone. It is one of those (No. 10) presented to the Institute by Mr. Stanbridge, of Daylesford, Australia, and referred to at page 41 of the Journal, vol. vi.

OCCURRENCE OF PLATYCNEMIC BONES IN THE ANCIENT BURIAL-GROUND AT KINTBURY.

By Prof. T. Rupert Jones, F.R.S.

Visiting Newbury lately, I had the opportunity of seeing the ancient burial-ground at Kintbury, where human bones (referred to in various letters in the newspapers of late) have been found for some years during the process of digging away the chalk in the pit at the Whiting Factory, in the occupation of Mr. White. Mr. Walter Money, of Newbury, first drew attention to these ancient bones, having found several among some chalk that had been brought from Kintbury to Greenham.

Indeed, I was more desirous of examining the locality, and the conditions under which the skeletons occur, since I had already seen, by the courtesy of Mr. Walter Money and Mr. Montagu Palmer, a few of the old bones obtained at Kintbury, and had found that some of them presented certain interesting features, known to be characteristic of the oldest known human bones met with in caves in North Wales, West Yorkshire, Central France, and Gibraltar. I allude to the sharpness of the front edge of the shin-bone, and other prominent ridges and edges of the limb-bones. Archæologists and anatomists called this a "platycnemic" character, typified by the sabre-like or broadly compressed tibia or shin-bone. See "International Congress, Prehist. Archæol." Norwich, 1868, p. 160, &c. (Busk); "Reliquiæ Aquitanicæ," p. 97 (Broca); p. 256, &c. (Hamy); "Journal Ethnolog. Soc.," London, January, 1871, p. 450 (Busk and Dawkins); "Cave-hunting," p. 173, &c. (Busk and Dawkins). The sharpness, however, of the shins and other ridges is not so strongly developed in the bones at Kintbury as in other cases.

Desirous of knowing more about these remains, and the early people whom they represent, I enjoyed the advantage of Mr. Walter Money's aid and company in examining the interesting locality

referred to. Under the surface soil of the sloping field in which the chalk pit has been dug, we noticed several sections of graves or cists that had been dug in the chalk to the depth of nearly three feet, filled in with disturbed chalk and earth, and subsequently covered over by accumulations of soil. One of these ancient graves, which had been trenched upon in digging the chalk, was seen in section on the face of the pit, looking south; it showed some bones just exposed, and we carefully examined it by digging down to its floor, and right and left to some portions of its east and west sides; but we had not time nor convenience to expose its whole extent. In the lowest portion of its rubbly infilling we found remains of two adult skeletons, some parts of which had already fallen away into the chalk-pit; also a skeleton of a female, with the bones of a child apparently in her arms; also the skeleton of a tall old man, and indications of one or more skeletons which we did not unearth. The four first-mentioned skeletons lay with their heads to the west, on the back or side; the woman on the side and bent forward; the old man on the back, with the head bent sharply forward. They looked as if the corpses had been placed in the graves without much care, and without coffins or cerements of any kind. The leg-bones of some other skeletons (not uncovered) reached over from the east side of the grave, and crossed the feet of some of those above mentioned. Nothing was found with the bones; but on a protruding portion (mastoid process) of the base of one of the skulls was a stain of verdigris, apparently indicating the probable existence of some copper or bronze article there at a former period. If this were the usual *obolus* placed in the mouth of the deceased, according to Roman custom, some approximation would be made as to the probable date of burial; but the indication is poor, and nothing else was found to substantiate the notion. From the peculiar race-character of the bones mentioned above, namely, their relatively sharp ridges, we might refer the remains to those prehistoric inhabitants of our islands and of Europe, who used stone implements, and lived here and there in caves. The shape of the skulls we examined is that of the same cave-folk; and their nearest existing allies, judged by such natural standards, are said to be the Basques, Iberians, and Aquitanians; and the Finns are regarded as not far removed. Indeed, these people are supposed to be remnants of a primeval race who retreated before the Celts, invading Western Europe from the East, just as the Celts retreated to the same and neighbouring fastnesses when pressed, in their turn, by the Teutonic and other races. The Iberians and Celts are thus found together in Ireland, Wales, and elsewhere. This subject is treated of in Professor Boyd Dawkins' interesting book on "Cave-hunting" (8vo, 1874), p. 225, &c., and references to Huxley and other ethnological authorities are there given.

Were the Kintbury skeletons buried when their race dominated in Britain? Are they the remains of Iberian survivors among a Celtic population, or even among inhabitants of a later date? Do their characteristics persist among the local population of to-day?

Can the Kintbury villagers boast of so old an ancestry? Have they, indeed, amongst them the bones of their forefathers who lived some two thousand, or even four thousand years ago?

Another point of interest is the reason and method of the interment of the prehistoric people, whose cemetery the chalk-pit has so long and so largely invaded. They were buried, at least in some instances, several in a pit, pit-like grave, or cist. How should there be so many corpses to be buried together at the same time? Epidemics, famines, massacres do not often leave, in savage or half-civilised communities, many survivors willing or able to dig definite graves for individuals or families. Were dead chieftains, on the other hand, buried here, with their slaughtered slaves around them? If so, where then are the other traces of barbaric power and wealth, whether well wrought weapon of stone or implement of bronze, which accompany the mighty one on his journey home? Will more extended search find such indications in other graves of this old station?

The relatively large amount of animal matter existing in most of the bones may be against the notion of a very remote prehistoric burial, and favour the idea of the sharp-shinned people having lived on at Kintbury, with some modification of the platycnemic character.

We can, as yet, form scant notion of the habits and customs of the old folk who used this chalk slope, overlooking the Kennett, for their cemetery. They may have lived close by, or they may have had their fastness on the higher hill behind. A careful search for stone and metal implements, for coins, and for pit-marks of old earth-dwellings in the neighbourhood, such as the learned and acute Dr. Stevens, of St. Mary Bourne, has so successfully discovered in Hampshire, should be systematically carried out.

At all events, these bones seem to belong to a race of people whose scattered remains are found in various caves of immense antiquity, as old before history began, as history itself may be, and whose successors are traced in Europe of to-day. Whether they lived and died at Kintbury in those earliest days, or survived among new comers, is a point belonging to the story of this land, if it can be pieced together; and we hope to learn from the combined researches of archæologist and anatomist, of local explorer and the student of history, something to elucidate these questions.